

Overlook at Kings Point Traffic Impact Study



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Submitted To:

Redland
1500 West Canal Court
Littleton, CO 80120

Submitted By:

Fox Tuttle Transportation Group, LLC
1624 Market Street, Suite 202
Denver, CO 80202

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OVERLOOK AT KINGS POINT TRAFFIC IMPACT STUDY

1.0 Introduction

The Fox Tuttle Transportation Group has prepared this traffic impact study for the development of the Overlook at Kings Point project. The 120± acres of vacant property is located within the City of Aurora about halfway between Parker Road and Ireland Way, southeast of E-470 and west of the Travois neighborhood. It is understood that the proposed development will consist of 269 single-family detached homes. **Figure 1** provides a vicinity map for the proposed project.

The purpose of this study is to assist in identifying potential traffic impacts within the study area resulting from this project. The traffic study addresses existing, short-term, and long-term peak hour intersection conditions in the study area with and without the project-generated traffic, and with and without the Pine Drive Extension. The information contained in this study is anticipated to be used by the City of Aurora staff in identifying any intersection or roadway deficiencies and potential improvements for the build-out condition and long-term future scenarios. This study focused on the weekday AM and PM peak hours which represents the periods of highest trip generation for the proposed use and adjacent street traffic. The study is consistent with the requirements of the City of Aurora's *Traffic Impact Study Guidelines* (June 2015). The following supporting documents were reviewed and incorporated into this analysis as appropriate:

- Crown Point Development Traffic Impact Study. Felsburg Holt & Ullevig. August 2003. Including subsequent traffic letters for updates.
- Southeast Area Transportation Study. City of Aurora Planning & Development Services Department. August 2007.
- The Lighthouse at Crown Point, Kings Point South, Traffic Impact Study. Felsburg Holt & Ullevig. May 2013.
- NWC Parker & Cottonwood Retail. Kimley-Horn and Associates. October 2013.
- Kings Point Development Traffic Impact Study. Atkins. September 2017.

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- Parker Road Corridor Plan. Town of Parker and Kimley-Horn. December 2019.
 - Kings Point Development Traffic Impact Study. Fox Tuttle Transportation Group. February 2022. Including subsequent traffic impact letters.
 - Douglas County 2040 Transportation Plan. David Evans and Associates, Inc. September 2019.
 - Aurora Places, The Comprehensive Plan for the City of Aurora, Colorado. City of Aurora Staff and Boards/Committees and Houseal Lavigne team. October 2018.
 - Town of Parker Roadway System Evaluation Update. Felsburg Holt & Ullevig. December 2020.
 - Parker 2035 Changes and Choices. Town of Parker Staff and Boards/Committees and Kezziah Watkins team. December 2018.

2.0 Project Description

The Overlook at Kings Point project plans to develop vacant land with an internal roadway network that includes amenities for all road users: drivers, pedestrians, and bicyclists. The proposed plan is to construct up to 269 single-family residential dwelling units (DU). The Overlook at Kings Point plans to provide two (2) access locations on the north edge of the property from the future Aurora Parkway. A third access, also from Aurora Parkway, will be provided west of the development to connect to the proposed Vista at Kings Point project which is located directly west of the Overlook property. The construction of Aurora Parkway is anticipated to begin in Year 2023 as part of the larger development of Kings Point (now known as Prairie Point).

For the purpose of this traffic study, it was assumed that Overlook at Kings Point will be completed by Year 2027 and Aurora Parkway will also be completed. Internally, local streets will be constructed to provide the most beneficial access into and around the site. A proposed site plan along with proposed access to the site are provided on **Figure 2**.

3.0 Study Considerations

3.1 Data Collection

Counts were collected in April 2022 at three (3) existing intersections: Parker Road at Long Avenue, Aurora Parkway at Gartrell Road, and Pine Drive at Inspiration Drive. Roadway volumes were also collected at three (3) locations: Ireland Way south of the E-470 overpass, Aurora Parkway west of Gartrell Road, and Pine Drive south of Inspiration Drive. Additionally, data from the Kings Point Development Traffic Impact Study (February 2022) was utilized to estimate traffic at three (3) future external intersections: Parker Road at Aurora Parkway, Aurora Parkway at Ireland Way, and Aurora Parkway at Kings Point Drive.

Future projections within and near the project area were gathered from adjacent development traffic studies; the Southeast Area Transportation Study (SEATS); DRCOG database; and from CDOT's database. The existing traffic volumes are illustrated on **Figure 3**. The existing intersection geometry and traffic control are also shown on this figure. Count data sheets are provided in the **Appendix**.

3.2 Approved Developments and New Roadways

The Southeast Aurora area is continuing to grow with new developments and new roadways to provide connections between current and future land uses. Adjacent to the Overlook at Kings Point property, the following known development projects are approved, portions of the site are under construction, under review, or in the planning stages: (1) Eagle Bend, (2) Rockinghorse, (3) Kings Point South, (4) Crown Point, (5) Cottonwood, (6) Kings Point (now known as Prairie Point), (7) Vista at Kings Point, and (8) Inspiration. The trips from each of these developments were assumed to be included within the background growth in SEATS and in previous traffic studies.

There are many recent and future roadway and intersection construction projects within or near the study area that will serve the existing and future traffic volumes. Several of the study intersections will be expanded to accommodate auxiliary lanes and/or upgraded to be signalized. With the Kings Point (aka Prairie Point) development and other projects in the area, Aurora Parkway will be extended west from where it ends near Quemoy Way to connect to Parker Road.

3.3 Evaluation Methodology

The traffic operations analysis addressed the signalized and unsignalized intersection operations using the procedures and methodologies set forth by the *Highway Capacity Manual (HCM)*¹. Existing peak hour factors (PHF) by approach and peak hour were applied to the study intersections for the existing scenarios. For future scenarios, the PHF were set to 0.92 in the future unless the existing PHF was greater than these values. Study intersections were evaluated using Synchro software (v11).

3.4 Level of Service Capacity Analysis

A Level of Service analysis was conducted to determine the existing and future performance of the study area intersections and accesses to determine the most appropriate intersection traffic controls and auxiliary lanes for future conditions.

To measure and describe the operational status of the study intersections, transportation engineers and planners commonly use a grading system referred to as “Level of Service” (LOS) that is defined by the *HCM*. LOS characterizes the operational conditions of an intersections traffic flow, ranging from LOS A (indicating very good, free flow operations) and LOS F (indicating congested and sometimes oversaturated conditions). These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with traveling through the intersections. The intersection LOS is represented as a delay in seconds per vehicle for the intersection as a whole and for each turning movement.

Typically, LOS A through C is considered to be acceptable for the overall intersection operations and LOS D overall during peak hours is acceptable. Individual movements may be allowed to fall to LOS E at signalized intersections. Minor movements at unsignalized intersections, such as left turns onto a major arterial, may be allowed to fall below LOS D, specifically where there are low volumes and/or no viable alternative per the City of Aurora’s *Traffic Impact Study Guidelines*. Criteria contained in the *HCM* was applied for these analyses in order to determine peak hour LOS for each scenario. A more detailed discussion of LOS methodology is contained in the **Appendix** for reference.

¹ *Highway Capacity Manual*, Highway Research Board Special Report 209, Transportation Research Board, National Research Council, 6th Edition (2016).

4.0 Existing Conditions

4.1 Roadways

The study area boundaries are based on the amount of traffic to be generated by the project and potential impact to the existing roadway network. The primary public roadways that serve the project site are discussed in the following text and illustrated on **Figure 1**.

E-470 is a six-lane divided toll highway that provides regional access around the eastern and northern Denver metro area. The toll road currently extends 47 miles from C-470 at I-25 in Douglas County (west of the project site) to I-25 near 160th Avenue in Thornton where it becomes the Northwest Parkway. E-470 connects three counties, six municipalities, and Denver International Airport. E-470 has full-movement interchanges at Parker Road and Gartrell Road. This expressway has a posted speed limit of 75 miles per hour (mph) and serves approximately 46,600 vehicles per day (vpd) near the interchange with Parker Road.

Parker Road (State Highway 83) is a six-lane, north-south, regional arterial roadway that provides access through the Town of Parker and into south Aurora. This roadway is categorized by CDOT as a Non-Rural Principal Highway (NR-A) within the project vicinity. Parker Road connects the study area to the City of Denver to the north and the City of Colorado Springs to the south, while providing local access to several commercial areas, residential neighborhoods, civic services, and recreational facilities. The posted speed limit is 45 miles per hour (mph) within the study area. Parker Road currently serves approximately 46,600 vpd north of E-470 (CDOT, Year 2019). The SEATS report and Parker Road Corridor Study recommends this roadway remain six-lane in the vicinity of the Kings Point site.

Gartrell Road is a north-south, four-lane minor arterial that extends from Arapahoe Road to Inspiration Drive. This roadway provides local access to the Saddle Ranch Shopping Center, Rockinghorse community, Heritage Eagle Bend community, and Saddle Rock East community. There is a full-movement interchange with E-470. The speed limit in the vicinity of the site is 40 mph. Gartrell Road serves approximately 11,000 vpd south of E-470 (CDOT, Year 2019).

Aurora Parkway is a four-lane divided roadway that is an east-west parallel facility to E-470. It connects Gartrell Road to Smoky Hill Road where it changes to Gun Club Road. Currently, Aurora Parkway dead-ends approximately 1/3-mile west of Gartrell Road with the plan to extend west over E-470, intersecting Parker Road north of Cottonwood Drive, and ending west of Parker Road.

The posted speed limit is 40 mph within the study area. Aurora Parkway serves approximately 7,700 vpd east of Gartrell Road (CDOT, Year 2019).

Ireland Way/Travois Trail is a north-south, two-lane roadway that provides local access to several residents with rural large single-family lots. This roadway connects Arapahoe Road (via Himalaya Way) to Inspiration Drive. The posted speed limit is 25 mph within the study area.

Pine Drive is a north-south arterial between Main Street, near downtown Parker, to Inspiration Drive where the roadways create a 90-degree bend for continued travel. Currently, the roadway provides access to several existing suburban and rural residential communities and is within four (4) municipal boundaries (City of Aurora, Town of Parker, Douglas County, and Arapahoe County). South of Lincoln Avenue, the cross-section of Pine Drive includes four travel lanes (two per direction) with a center median/left-turn lane. North of Lincoln Avenue, the roadway narrows to one lane per direction with gravel shoulders. The April 2022 count data indicated that there were 13,250 vehicles per day (vpd) on Pine Drive south of Inspiration Drive. The posted speed limit is 40 mph.

Inspiration Drive is an east-west, two-lane roadway that begins where Pine Drive ends and continues east to Piney Lake Road. Currently, Inspiration Drive provides access to rural residential properties and the newly built Inspiration community. The roadway has a posted speed limit of 40 mph, and it is assumed there are approximately 13,250 vpd on Inspiration Drive just east of the bend with Pine Drive.

Based on several municipal documents, the future plan for Pine Drive is to widen the two-lane section to four-lanes and to extend from Inspiration Drive to Aurora Parkway. The Aurora *Southeast Area Transportation Study (SEATS) (2007)* and the Aurora's Comprehensive Plan, *Aurora Places, (October 2018)* shows Pine Drive being extended as a four-lane minor arterial. The Douglas County *2040 Transportation Master Plan (2019)* and Parker's Transportation Master Plan, *Parker 2035: Changes and Choices (2018)*, also include the extension of Pine Drive and both documents recommended that Pine Drive be a four-lane minor arterial with Inspiration Drive remaining a two-lane collector. The Arapahoe County's *Transportation Master Plan (December 2021)* does not include Pine Drive or future connectivity to Aurora Parkway. For the purpose of this traffic impact study, all future backgrounds were evaluated with two (2) scenarios, without and with the Pine Drive Extension. Refer to **Section 5.2** for more detail.

4.2 Intersections

The study area includes two (2) existing intersections that are listed below with the current traffic control and were analyzed for existing and future background year traffic operations:

1. Gartrell Road at Aurora Parkway [signalized]
2. Pine Drive at Inspiration Dr [stop-controlled]

The existing lane configuration at each of the study locations is illustrated on **Figure 3**. Note that three (3) future intersections are included in this analysis, but not discussed or evaluated until the future scenarios.

4.3 Pedestrian and Bicycle

Currently, there are sidewalks on both sides of Gartrell Road and along the south side of Aurora Parkway. There are no sidewalks along Parker Road, Long Avenue, Ireland Way, or Himalaya Way.

The High Plains Trail/E-470 Regional Trail follows the alignment of the toll road connecting several communities including the Town of Parker, City of Aurora, and City of Lone Tree. This multi-use path provides access to Chatfield Reservoir, the Platte River Trail, the Cherry Creek Trail, and several local recreational/commuter trails. Just west of Parker Road is the Cherry Creek Trail that travels through the Town of Parker, City of Aurora, and City of Centennial into the Cherry Creek Reservoir State Park. The trail continues along the Cherry Creek into downtown Denver ending at Confluence Park. There is trailhead parking on Broncos Parkway and Cottonwood Drive. In addition to these two regional multi-use paths, there are several local trails including Happy Canyon Trail and Bridle trails throughout the Chenango community.

There are no on-street bike facilities or designated bike routes within the project study area. Bikes are encouraged to travel on the multi-use paths and are permitted to travel within general purpose lanes or shoulders.

4.4 Transit

Currently, there is one bus route that serve the study area. The City of Aurora and Town of Parker are serviced by Regional Transportation District (RTD). Route 483 travels along Parker Road from Nine Mile Station to the Parker park-n-ride and then travel along Twenty Mile Road and Lincoln Avenue to the Lincoln Station. This bus route has stops at the following locations on Parker Road within the study area: on the far sides of Pine Lane intersection; south of Cottonwood Drive; far sides of the Valley Hi Drive intersection.

4.5 Year 2022 Existing Intersection Capacity Analysis

The existing volumes, lane configuration, and traffic control are illustrated on **Figure 3**. The results of the LOS calculations for the intersections are summarized in **Table 1**. The details of LOS for each movement are provided in **Table 2** (see **Appendix**). The intersection Level of Service worksheets are attached in the **Appendix**. **Both study intersections currently operate overall at LOS C or better in both peak hours. All movements operate at LOS C or better in both peak hours.**

Table 1: Existing Overall Level of Service Summary

No.	Intersection	Traffic Control	AM Peak Hour	PM Peak Hour
1	Gartrell Road at Aurora Parkway	Signal	B	C
2	Pine Drive at Inspiration Drive	Stop	A (A)	A (B)

Note: Level of Service for unsignalized intersections is listed as Overall (Worse Movement)

5.0 Future Conditions

5.1 Annual Growth Factor and Future Volume Methodology

In order to forecast the future peak hour traffic volumes, background traffic growth assumptions were estimated based on the City's SEATS report, the Parker Road Corridor Study, DRCOG forecasts, and municipal comprehensive or transportation plans. The forecasted volumes included the completion of Aurora Parkway and Kings Point Drive and the completion of several development projects including: (1) Eagle Bend, (2) Rockinghorse, (3) Kings Point South, (4) Crown Point, (5) Cottonwood, (6) Kings Point (Prairie Point), (7) Vista at Kings Point, and (8) Inspiration. The trips from each of these developments were assumed to be included within the background growth in SEATS and in previous traffic studies.

Based on a comparison of the projections, the annual growth rates on the existing roadways range from 0.5% to 2.1%, with an average of 1.2% annually. The volumes on Aurora Parkway were calculated to grow at a rate of 3.0% annually, which is expected with the completion of several developments along this arterial. The average rate of 1.2% was applied to the traffic at the existing study intersections. It was assumed that 30% of Kings Point (Prairie Point) and 100% of Vista at Kings Point will be completed. It was assumed that Kings Point South will be completed after Year 2027 and before Year 2040.

The future intersections of Parker Road at Aurora Parkway; Aurora Parkway at Ireland Way/Travois Trail; and Aurora Parkway at Kings Point Drive were included in the background analyses to compare project impacts and to redirect traffic to the new through roadway. Volumes on Aurora Parkway were estimated from previous traffic studies and adjusted with updated information related to the projects near Overlook at Kings Point.

Using these assumptions, the Year 2027 background traffic is summarized on **Figure 4A** (without Pine Drive extension) and **Figure 4B** (with Pine Drive extension). The Year 2040 background traffic is summarized on **Figure 5A** (without Pine Drive extension) and **Figure 5B** (with Pine Drive extension).

5.2 Future Anticipated Transportation Network

For comparison purposes, this traffic study assumes that the planned roadways and auxiliary lanes shown in other development traffic studies will be completed by Year 2027 background. If the future scenarios were evaluated with the existing roadway network, then it would be difficult to compare intersection operation when many of the intersections will be altered due to future volumes, capacity, and routing that are not associated with the project. The following roadway and intersection improvements were assumed to be completed by Year 2027:

- **Aurora Parkway** – Construct two lanes per direction from the end point near Quemoy Way to just west of Parker Road. It is understood that portions of this roadway will be built with the Kings Point (Prairie Point) project. Other portions will be built with the other developments within the Kings Point area, including Overlook at Kings Point.
- **Kings Point Drive** – Construct one lane per direction from the end point of Dry Creek Road to connect with Aurora Parkway halfway between Parker Road and E-470. It is understood that this roadway will be built with the Kings Point (Prairie Point) project.

In addition to the roadways listed above, this study considers the potential extension of Pine Drive from Inspiration Drive north to the future Aurora Parkway. The future transportation plans for the City of Aurora, Town of Parker, and Douglas County include Pine Drive being widened to four (4) lanes and extending north. However, the projects near the Pine Drive extension prefer to remove the extension since it would be difficult to accommodate and would bisect the future communities.

All future backgrounds were evaluated with two (2) scenarios without and with the Pine Drive Extension to understand the impacts of both situations:

- **Scenario A, No Extension:** Pine Drive continues to end at Inspiration Drive (same as existing).
- **Scenario B, With Extension:** Pine Drive is extended north from Inspiration Drive to the future Aurora Parkway.
 - *Assumptions with Extension:*
 - Volumes along Pine Drive, Inspiration Drive, Gartrell Road, and future Aurora Parkway were adjusted and redirected, as appropriate.
 - Approximately 20% of westbound traffic were assumed to redirect to Aurora Parkway and the Pine Drive Extension.
 - Approximately 40% of eastbound traffic were assumed to redirect to Aurora Parkway and the Pine Drive Extension.
 - Pine Drive south of Inspiration Drive will be widened to four (4) lanes (two per direction).
 - Pine Drive north of Inspiration Drive will be constructed with two (2) lanes (one per direction).
 - The intersection of Pine Drive and Inspiration Drive warrants a traffic signal. It is anticipated this intersection will include one westbound left-turn lane, one shared westbound left-turn/right-turn lane, one northbound through lane, one northbound right-turn lane, one southbound through lane, and one southbound left-turn lane.
 - The intersection of Pine Drive at Aurora Parkway is anticipated to provide one eastbound through lane, one shared eastbound through/right-turn lane, one westbound left-turn lane, two westbound through lanes, one northbound left-turn lane, and one northbound right-turn lane.
 - With the extension, the volumes at this intersection are above signal warrant thresholds, however, the capacity analysis and queue analysis indicated a signal is not needed.

These future roadway and intersection improvements were assumed to be in place in the short-term background condition and are shown on **Figure 4A** (without Pine Drive extension) and **Figure 4B** (with Pine Drive extension). These assumed lane configuration in the long-term background condition are shown on **Figure 5A** (without Pine Drive extension) and **Figure 5B** (with Pine Drive extension).

Parker Road is currently three (3) lanes per direction and the future plans for this regional arterial do not include widening and is not recommended although traffic volumes are high, and congestion is experienced in peak periods.

5.3 Year 2027 Background Intersection Capacity Analysis

The study area intersections were evaluated to determine baseline operations for the Year 2027 background scenario and to identify any capacity constraints associated with background traffic (refer to **Section 5.1** for growth assumptions). It was assumed that the roadway and intersection improvements listed in **Section 5.2** will be implemented by Year 2027 background. The background volumes, lane configuration, and traffic control are illustrated on **Figure 4A** (without Pine Drive extension) and **Figure 4B** (with Pine Drive extension).

The Level of Service criteria discussed previously was applied to the study area intersections to determine the impacts with the short-term background volumes. This analysis assumes signal timing throughout the network would be adjusted to accommodate the additional lanes and changes in traffic volumes. It should be noted that the peak hour factor was adjusted 0.92 (if the existing factor is less than 0.92) on the arterials and local streets since it is assumed that the peak periods will become longer with peak hour traffic spread more evenly over the hour as traffic increases beyond what is experienced today.

The results of the LOS calculations for the intersections are summarized in **Table 3**. The details of LOS for each movement are provided in **Table 2** (refer to **Appendix**). The intersection Level of Service worksheets are attached in the **Appendix**.

Table 3: Year 2027 Background Overall Level of Service Summary

No.	Intersection	Traffic Control	Scenario A		Scenario B	
			No Pine Dr Ext.		With Pine Dr Ext.	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1	Gartrell Rd at Aurora Pkwy	Signal	B	C	B	C
2	Pine Dr at Inspiration Dr	Stop => Signal	A (A)	A (B)	B	B
3	Parker Rd at Aurora Pkwy	Signal	C	C	Same as Scenario A	
4	Ireland Way at Aurora Pkwy	Stop	A (C)	A (C)	A (C)	A (B)
5	Aurora Pkwy at Kings Point Dr	Roundabout	A (A)	A (A)	Same as Scenario A	
101	Aurora Parkway at Pine Drive	Stop	not applicable		A (C)	A (C)

Note: Level of Service for unsignalized intersections is listed as Overall (Worse Movement)

In summary, all study intersections will continue to operate overall at LOS C or better in both peak hours. The following intersection had movements calculated to operate at LOS E in one or both peak hours in Year 2027 background as described below:

- **#3 – Parker Road at Aurora Parkway:** This future signalized intersection is anticipated to operate overall at LOS C in the AM peak hour and LOS C in the PM peak hour and the intersection performance is not impacted by the Pine Drive extension. During the morning peak, the northbound and southbound left-turns were estimated to operate at LOS E with 95th percentile queues up to 96 feet in length (about four vehicles). During the PM peak hour, the northbound and southbound left-turns and the eastbound right-turn movements were estimated to operate at LOS E. The 95th percentile queue for these movements were calculated to be up to 123 feet (about five vehicles). All peak hour turning movement are the same for both Scenarios A and B.

Recommendations: No mitigation measures are recommended. It is typical for protected only left-turn movements to experience delay due to limited green time. It is anticipated that the side-street right-turns will have limited opportunities to turn onto Parker Road during the red phase. Queues are anticipated to be contained within the future storage lengths.

5.4 Year 2040 Background Intersection Capacity Analysis

The study area intersections were evaluated to determine baseline operations for the Year 2040 background scenario and to identify any capacity constraints associated with background traffic in the long-term scenario (refer to **Section 5.1** for growth assumptions). The long-term background volumes, lane configuration, and traffic control are illustrated on **Figure 5A** (without Pine Drive extension) and **Figure 5B** (with Pine Drive extension).

The Level of Service criteria discussed previously was applied to the study area intersections to determine the impacts with the long-term background volumes. The analysis assumed the signal timing at all signalized intersections would be adjusted to accommodate the additional lanes and change in traffic volumes.

The results of the LOS calculations for the intersections are summarized in **Table 4**. The details of LOS for each movement are provided in **Table 2** (refer to **Appendix**). The intersection Level of Service worksheets are attached in the **Appendix**.

Table 4: Year 2040 Background Overall Level of Service Summary

No.	Intersection	Traffic Control	Scenario A		Scenario B	
			No Pine Dr Ext.		With Pine Dr Ext.	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1	Gartrell Rd at Aurora Pkwy	Signal	B	C	C	C
2	Pine Dr at Inspiration Dr	Stop => Signal	A (A)	A (B)	B	B
3	Parker Rd at Aurora Pkwy	Signal	C	C	Same as Scenario A	
4	Ireland Way at Aurora Pkwy	Stop	A ©	A (B)	A (D)	A (D)
5	Aurora Pkwy at Kings Point Dr	Roundabout	A (A)	A (A)	Same as Scenario A	
101	Aurora Parkway at Pine Drive	Stop	not applicable		A (D)	A ©

Note: Level of Service for unsignalized intersections is listed as Overall (Worse Movement)

In summary, the majority of the of the study intersections are estimated to operate similarly to the 2027 background scenario with additional delay expected at the congested intersections. Movements that operated at LOS E/F in the short-term background scenarios were estimated to continue to operate at these levels. The following intersection was calculated to have one movement begin to operate at LOS E in one or both peak hour in Year 2040 background as described below:

- **#3 – Parker Road at Aurora Parkway:** This future signalized intersection is anticipated to operate overall at LOS C in both the AM and PM peak hours, and the intersection performance is not impacted by the Pine Drive Extension. During the morning peak, the westbound left-turn was estimated to operate at LOS E and the 95th percentile queues were calculated to be up to 311 feet (about 12 cars). The queued vehicles are anticipated to be maintained in the storage based on the minimum anticipated storage length (see **Table 9**). The northbound and the southbound left-turns were estimated to continue operating at LOS E in both peak hours with the 95th percentile queues extending up to 191 feet (about eight vehicles).

Recommendations: No mitigation measures are recommended. It is typical for protected only left-turn movements to experience delay due to limited green time. It is anticipated that the side-street right-turns will have limited opportunities to turn onto Parker Road during the red phase. Queues are anticipated to be contained within the proposed storage lengths.

6.0 Future Conditions with Overlook at Kings Point Development

The Overlook at Kings Point development is anticipated to consist of 269 residential homes. The site is planned to be developed over several years. For the purpose of this traffic study, it was assumed that the entire project will be complete by the Year 2027.

The two options for Pine Drive were included in the future project scenarios: Scenario A is without the Pine Drive extension but Pine Drive widening to four lanes south of Inspiration Drive and Scenario B consists of the municipal-planned extension of Pine Drive north of Inspiration Drive through the Overlook and Vista at Kings Point project areas. In Scenario B, the trip associated with Overlook at Kings Point and Vista at Kings Point destined for locations south of the Kings Point area were redirected to the extension (Refer to **Section 5.2** for details on assumptions).

6.1 Trip Generation

A trip generation estimate was performed to determine the traffic characteristics of the proposed density and land uses of the Overlook at Kings Point development. The trip rate for “Single-Family Detached Housing” (ITE #210) contained in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*² was applied to estimate the traffic generated by the proposed land use.

Table 5 provides the detailed trip generation estimates for the Overlook at Kings Point project (refer to the **Appendix**). The proposed project is expected to experience mostly new trips, also known as ‘primary trips’, as well as non-auto trips which are discussed below:

Primary Trips. These trips are made specifically to visit the site and are considered “new” trips. Primary trips would not have been made if the proposed project did not exist. Therefore, this is the only trip type that increases the total number of trips made on a regional basis.

Non-Auto Trips. These trips are those that are completed by walking, biking, or transit. The non-auto trips were assumed to be 5%.

The Overlook at Kings Point project was estimated to generate approximately 2,410 daily trips with 179 trips in the AM peak hour and 240 trips in the PM peak hour.

6.2 Trip Distribution and Assignment

The estimated trip volumes were distributed onto the study area street network based on existing traffic characteristics, land uses, and traffic patterns in the area, as well as regional growth and future roadway infrastructure. The trip distributions also considered travel patterns utilized for adjacent developments. The following distributions for both Scenarios A and B are presented below in **Table 6** and on **Figure 6A** (without Pine Drive extension) and **Figure 6B** (with Pine Drive extension).

² *Trip Generation Manual, 11th Edition*, Institute of Transportation Engineers, 2021.

Table 6: Distribution Summary

To/From	Trip Distribution Per Scenario	
	Scenario A (without Pine Dr. Extension)	Scenario B (with Pine Dr. Extension)
North via Parker Road	35%	30%
South via Parker Road	31%	18%
North via Kings Point Drive	2%	2%
North via Ireland Way	2%	2%
South via Ireland Way	3%	0%
North via Gartrell Road	19%	14%
South via Gartrell Road	3%	1%
East via Aurora Parkway	5%	5%
South via Pine Drive	0%	18%
South via Inspiration Drive	0%	10%

Using these distribution assumptions, the projected site traffic was assigned to the study area roadway network and appropriate accesses for the weekday AM and PM peak hour periods based on the most convenient route. The trip distributions are shown on **Figure 6A** (without Pine Drive extension) and **Figure 6B** (with Pine Drive extension).

The trip generation volumes from **Table 5** were multiplied by the trip distribution percentages to assign the trips throughout the study area. The new site-generated trips in Scenario A (no Pine Drive extension) for the external study intersections are shown on **Figure 7A.1** and the access intersections are shown on **Figure 7A.2**. The new site-generated trips in Scenario B (with the Pine Drive extension) for the external study intersections are shown on **Figure 7B.1** and the access intersections are shown on **Figure 7B.2**.

6.3 Proposed Roadway Network and Access

Primary access to the Overlook at Kings Point site is planned via the future extension of Aurora Parkway, along the north boundary of the property. It is proposed that there will be one (1) direct access onto Aurora Parkway and another access that connects into Planning Area 36 of Kings Point (aka Prairie Point) which will lead to a future T-intersection on Aurora Parkway. Secondary access is planned via a connection into the Vista at Kings Point to the west, which is planned to have a roadway that leads to Aurora Parkway as well.

If the Pine Drive extension (Scenario B) were implemented, then Overlook at Kings Point will have another access directly onto the Pine Drive extension which will lead south into the Town of Parker.

The proposed access intersections and the anticipated lane configuration and traffic control are illustrated on **Figures 7A.1, 7A.2, 7B.1, and 7B.2**. The need for turn lanes was based on turn volume, opposing volume, roadway classification, and operations. As discussed previously, the future volumes with the extension of Pine Drive (Scenario B) were estimated to warrant a signal at the intersection of Pine Drive and Inspiration Drive.

Internally, local streets will be constructed to provide the most beneficial access into and around the site with pedestrian and bicycle friendly amenities.

6.4 Future Pedestrian and Bicycle Facilities

The Overlook at Kings Point project proposes to have sidewalks throughout the property to connect internally and externally. Refer to the design plans for the locations, widths, and connections of the pedestrian and bicycle facilities associated with this project.

Aurora Parkway will have on-street bike lanes, except on the segment just east of Parker Road. Cyclists will be directed to the High Plans Regional Trail. According to the City of Aurora's Bike Map, it is planned that the High Plans Regional Trail be incorporated into the south sidewalk of Aurora Parkway to connect the E-470 Trail to the Cherry Creek Trail.

6.5 Year 2027 Background + Project Intersection Capacity Analysis

This section discusses impacts associated with the addition of the Overlook at Kings Point development trips in the short-term condition. The site-generated volumes were added to the Year 2027 background volumes and are illustrated on **Figure 8A.1** (external intersections, without Pine Drive extension) and **Figure 8A.2** (access intersections, without Pine Drive extension) and **Figure 8B.1** (external intersections,

with Pine Drive extension) and **Figure 8B.2** (access intersections, with Pine Drive extension). These figures also illustrate the necessary traffic control and lane configurations for all of the study intersections and proposed accesses. The recommended improvements in the Year 2027 background scenario were assumed to be implemented. The analysis assumed the signal timing at all existing and future signalized intersections would be adjusted to accommodate future conditions, therefore, optimized timing was utilized.

The results of the LOS calculations for the intersections are summarized in **Tables 7**. The details of the LOS for each movement are listed in **Table 2**. The intersection Level of Service worksheets are attached in the **Appendix**.

Table 7: Year 2027 Background + Project Overall Level of Service Summary

No.	Intersection	Traffic Control	Scenario A		Scenario B	
			No Pine Dr Ext.		With Pine Dr Ext.	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1	Gartrell Rd at Aurora Pkwy	Signal	B	C	B	C
2	Pine Dr at Inspiration Dr	Stop => Signal	A (A)	A (B)	B	B
3	Parker Rd at Aurora Pkwy	Signal	C	C	Same as Scenario A	
4	Ireland Way at Aurora Pkwy	Stop	A (C)	A (B)	A (C)	A (C)
5	Aurora Pkwy at Kings Point Dr	Roundabout	A (A)	A (A)	Same as Scenario A	
101	Aurora Pkwy at Pine Drive	Stop => Signal	A (B)	A (C)	A (D)	A (C)
102	Aurora Pkwy at Overlook West Access	Stop	A (B)	A (B)	A (C)	A (C)
103	Aurora Pkwy at Kings Point Access #115 (Overlook East Access)	Stop	A (B)	A (B)	A (C)	A (C)

Note: Level of Service for unsignalized intersections is listed as Overall (Worse Movement)

Scenario A (no Pine Drive extension): In summary, the Overlook at Kings Point project trips have little to no impact to the study intersection operations. The analysis indicated that only one movement would begin to operate at LOS E with the additional trips, which was the westbound left-turn movement at the intersection of Parker Road and Aurora Parkway during the AM peak. The LOS D in the background

scenario is right on the threshold, as is the LOS E for the with project scenario. The actual change in delay due to added project volume in that movement is reasonable (approximately six seconds) at the future congested intersection. The majority of other increases in delay were calculated to be minimal (three seconds or less) and the increase in the 95th percentile queues were calculated to be up to two (2) vehicles.

Scenario B (with Pine Drive extension): In summary, the Overlook at Kings Point project trips have little to no impact to the study intersection operations. Similar to Scenario A, the westbound left-turn movement at Parker Road and Aurora Parkway was calculated to begin to operate at LOS E during the AM peak hour, which is not of concern since the delay is reasonable for a side-street left-turn and the queue will be contained with the future storage length. The majority of other increases in delay were calculated to be minimal (two seconds or less) and the increase in the 95th percentile queues were calculated to be up to two (2) vehicles.

6.6 Year 2040 Background + Project Intersection Capacity Analysis

The site-generated volumes for the Overlook at Kings Point project were added to the Year 2040 background volumes and are illustrated on **Figure 9A.1** (external intersections, without Pine Drive extension) and **Figure 9A.2** (access intersections, without Pine Drive extension) and **Figure 9B.1** (external intersections, with Pine Drive extension) and **Figure 9B.2** (access intersections, with Pine Drive extension). These figures also illustrate the necessary traffic control and lane configurations for all of the study intersections and proposed accesses. The recommended improvements in the previous conditions were assumed to be implemented. The results of the LOS calculations for the intersections are summarized in **Table 8**. The details of the LOS for each movement are summarized in **Table 2**. The intersection Level of Service worksheets are attached in the **Appendix**.

Table 8: Year 2040 Background + Project Overall Level of Service Summary

No.	Intersection	Traffic Control	Scenario A		Scenario B	
			No Pine Dr Ext.		With Pine Dr Ext.	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1	Gartrell Rd at Aurora Pkwy	Signal	B	C	B	C
2	Pine Dr at Inspiration Dr	Stop => Signal	A (A)	A (B)	B	B
3	Parker Rd at Aurora Pkwy	Signal	C	C	Same as Scenario A	
4	Ireland Way at Aurora Pkwy	Stop	A (C)	A (C)	A (D)	A (D)
5	Aurora Pkwy at Kings Point Dr	Roundabout	A (A)	A (A)	Same as Scenario A	
101	Aurora Pkwy at Pine Drive	Stop => Signal	A (C)	A (B)	A (D)	A (D)
102	Aurora Pkwy at Overlook West Access	Stop	A (B)	A (B)	A (C)	A (C)
103	Aurora Pkwy at Kings Point Access #115 (Overlook East Access)	Stop	A (B)	A (B)	A (C)	A (C)

Note: Level of Service for unsignalized intersections is listed as Overall (Worse Movement)

Scenario A (no Pine Drive extension): In summary, the Overlook at Kings Point project trips have little to no impact to the study intersection operations. The analysis indicated that all of the overall levels of service and majority of movements are the same as the long-term background performance. Majority of operations are LOS C or better. At the intersection of Parker Road and Aurora Parkway, the left-turn movements that were calculated to operate at LOS E in the background scenario will continue to operate at LOS E with the project trips. Throughout the study area, the increases in delay were calculated to be minimal (four seconds or less) and the increase in the 95th percentile queues were calculated to be up to three (3) vehicles.

Scenario B (with Pine Drive extension): In summary, the Overlook at Kings Point project trips have little to no impact to the study intersection operations. The analysis indicated that all of the overall levels of service and majority of movements are the same as the long-term background performance. Majority of operations are LOS C or better. At the intersection of Parker Road and Aurora Parkway, the left-turn movements that were calculated to operate at LOS E in the background scenario will continue to operate at LOS E with the project trips. Throughout the study area, the increases in delay were calculated to be

minimal (four seconds or less) and the increase in the 95th percentile queues were calculated to be up to two (2) vehicles.

7.0 Queuing Analysis

A queuing analysis was performed to determine if the 95th percentile queues would be accommodated by the existing storage length, to determine the storage lengths for future auxiliary lanes, and if any of the queues would impact an upstream intersection/access. **Table 9** provides the existing and proposed storage lengths, as well as the 95th percentile queues for each existing and future scenario as calculated by Synchro (assuming each vehicle utilizes 25 feet of space). It should be noted that the 95th percentile queue length is a theoretical queue that is 1.65 standard deviations above the average queue length. In theory, the 95th percentile queue would be exceeded 5% of the time based on the average queue length, but it is also possible that a queue this long may not occur.

As shown in **Table 9**, all of the queues are shorter than the provided or proposed storage lengths in all scenarios. The project trips do not significantly increase queues at the existing study intersections.

Recommended turn lanes storage lengths and taper lengths are listed in **Table 9**, which are based on CDOT's State Highway Access Code for the assumed posted speed of each study roadway. Classification of NR-A was utilized on Parker Road and NB-B on the other study roadways.

8.0 Conclusions

The Overlook at Kings Point development project proposes to develop up to 269 single-family homes. The vacant property is located in the City of Aurora about halfway between Parker Road and Ireland Way southeast of E-470 and west of the Travois neighborhood. Primary access to the property will be located on the future expansion of Aurora Parkway. It is assumed the Overlook at Kings Point will be completed within the next five (5) years. Internally, local streets will be constructed to provide the most beneficial access into and around the site for people driving, walking, and biking.

The project is estimated to generate approximately 2,410 daily trips with about 179 trips occurring in the AM peak hour and 240 trips occurring in the PM peak hour at full build-out. **It was determined that the**

existing and proposed roadway system can adequately accommodate the projected traffic volumes for buildout conditions. The analysis included the evaluation of Pine Drive remaining the same as currently exists and with the planned extension to the north per municipal transportation/comprehensive plans. The analysis does not indicate a need for the Pine Drive extension, which will need to be discussed and decided with the City of Aurora, Town of Parker, and Douglas County.

The following recommendations should be considered:

Background Conditions (Non-Project Related):

- **Aurora Parkway:** Construct from Parker Road to Quemoy Way with two lanes per direction.
- **Pine Drive (south of Inspiration Drive):** Widen to two lanes per direction by Year 2040 if volumes exceed 16,000 vehicles per day.
- **Pine Drive (north of Inspiration Drive):** Consider maintaining existing alignment and not extending north from Inspiration Drive to Aurora Parkway to reduce impacts to the future communities. If the extension is required, then consider constructing with one lane per direction (instead of two lanes per direction as listed in municipal plans).
- **Parker Road at Aurora Parkway:** Signal when constructed. Construct the intersection including eastbound- one left-turn lane, one through lane, and one right-turn lane; westbound- dual left-turn lanes, one through lane, and dual right-turn lanes; northbound- one left-turn lane, three through lanes, one right-turn lane; southbound- dual left-turn lanes, three through lanes, and one right-turn lane.
- **Aurora Parkway at Kings Point Drive:** Construct intersection as a roundabout. Include two lanes on the eastbound and westbound approaches and one lane on the northbound and southbound approaches.
- **Aurora Parkway at Pine Drive (#101):** Construct with eastbound- one through lane and one through/right-turn lane; westbound- one left-turn lane and two through lanes; northbound- one left-turn lane and one right-turn lane.
- **Aurora Parkway at Kings Point Planning Area 36 (Overlook East Access) (#103):** Include a left-turn lane on Aurora Parkway within median. Construct the access roadway with one inbound lane and one outbound lane.

-
- **All signalized intersections:** Adjust signal timing as appropriate for increases in volume. Balance the green time to serve all the movements and pedestrian crossings. All adjustments to signal timing on Parker Road will need to be evaluated for progression along the corridor.

Project Conditions:

- **Aurora Parkway:** Reserve right-of-way along project frontage and participate in completion of future roadway (to be determined with municipal discussions and agreements).
- **Aurora Parkway at Overlook West Access (#102):** Include a left-turn lane on Aurora Parkway within median. Construct the access roadway with one inbound lane and one outbound lane.

Note that the traffic study provides technical information and evaluates the need for transportation mitigation as traffic grows, but it does not address infrastructure commitments or obligations of the Overlook at Kings Point project.

Tables and Figures:

Table 1 – Existing Overall Level of Service Summary [IN REPORT]

Table 2 – Peak Hour Intersection LOS Summary for Existing Intersections

Table 3 – Year 2027 Background Overall Level of Service Summary [IN REPORT]

Table 4 – Year 2040 Background Overall Level of Service Summary [IN REPORT]

Table 5 – Trip Generation Summary

Table 6 – Distribution Summary [IN REPORT]

Table 7 – Year 2027 Background + Project Overall Level of Service Summary [IN REPORT]

Table 8 – Year 2040 Background + Project Overall Level of Service Summary [IN REPORT]

Table 9 – Peak Hour Estimated 95th Percentile Queue Lengths

Table 10 – Year 2040 Roadway Level of Service Summary [IN REPORT]

Figure 1 – Vicinity Map

Figure 2 – Site Plan

Figure 3 – Year 2022 Existing Traffic Volumes

Figure 4A – Year 2027 Background Traffic Volumes [without Pine Dr Extension]

Figure 4B – Year 2027 Background Traffic Volumes [with Pine Dr Extension]

Figure 5A – Year 2040 Background Traffic Volumes [without Pine Dr Extension]

Figure 5B – Year 2040 Background Traffic Volumes [with Pine Drive Extension]

Figure 6A – Trip Distribution [without Pine Dr Extension]

Figure 6B – Trip Distribution [with Pine Drive Extension]

Figure 7A.1 – Site-Generated Trip Volumes - External Intersections [without Pine Dr Extension]

Figure 7A.2 – Site-Generated Trip Volumes - Access Intersections [without Pine Dr Extension]

Figure 7B.1 – Site-Generated Trip Volumes - External Intersections [with Pine Dr Extension]

Figure 7B.2 – Site-Generated Trip Volumes - Access Intersections [with Pine Dr Extension]

Figure 8A.1 – Year 2027 Bkgrd + Project Traffic Volumes - External Intersections [without Pine Dr Extension]

Figure 8A.2 – Year 2027 Bkgrd + Project Traffic Volumes - Access Intersections [without Pine Dr Extension]

Figure 8B.1 – Year 2027 Bkgrd + Project Traffic Volumes - External Intersections [with Pine Dr Extension]

Figure 8B.2 – Year 2027 Bkgrd + Project Traffic Volumes - Access Intersections [with Pine Dr Extension]

Figure 9A.1 – Year 2040 Bkgrd + Project Traffic Volumes - External Intersections [without Pine Dr Extension]

Figure 9A.2 – Year 2040 Bkgrd + Project Traffic Volumes - Access Intersections [without Pine Dr Extension]

Figure 9B.1 – Year 2040 Bkgrd + Project Traffic Volumes - External Intersections [with Pine Dr Extension]

Figure 9B.2 – Year 2040 Bkgrd + Project Traffic Volumes - Access Intersections [with Pine Dr Extension]

Table 1 - Peak Hour Intersection Level of Service Summary

Intersection and Lanes Groups	2022 Existing				2027 Background Scenario A - No Extension				2027 Background Scenario B - w/ Pine Dr. Ext.				2027 Bkgrd + Project Scenario A - No Extension				2027 Bkgrd + Project Scenario B - w/ Pine Dr. Ext.				2040 Background Scenario A - No Extension				2040 Background Scenario B - w/ Pine Dr. Ext.				2040 Bkgrd + Project Scenario A - No Extension				2040 Bkgrd + Project Scenario B - w/ Pine Dr. Ext.			
	AM Peak Delay LOS		PM Peak Delay LOS		AM Peak Delay LOS		PM Peak Delay LOS		AM Peak Delay LOS		PM Peak Delay LOS		AM Peak Delay LOS		PM Peak Delay LOS		AM Peak Delay LOS		PM Peak Delay LOS		AM Peak Delay LOS		PM Peak Delay LOS		AM Peak Delay LOS		PM Peak Delay LOS		AM Peak Delay LOS		PM Peak Delay LOS					
STOP SIGN CONTROL																																				
2. Pine Dr at Inspiration Dr	0	A	0	A	0	A	0	A			0	A	0	A			0	A	0	A			0	A	0	A			0	A	0	A				
Westbound Left+Right	0	A	0	A	0	A	0	A	Analyzed with signal control		0	A	0	A	Analyzed with signal control		0	A	0	A	Analyzed with signal control		0	A	0	A	Analyzed with signal control		0	A	0	A	Analyzed with signal control			
Northbound Through+Right	0	A	0	A	0	A	0	A			0	A	0	A			0	A	0	A			0	A	0	A			0	A	0	A				
Southbound Left+Through	0	A	11	B	0	A	12	B			0	A	12	B			0	A	13	B			0	A	13	B			0	A	13	B				
4. Ireland Way at Aurora Pkwy					2	A	3	A	2	A	2	A	3	A	2	A	2	A	3	A	3	A	3	A	3	A	3	A	3	A	3	A	3	A		
Eastbound Left	Future Intersection				8	A	8	A	9	A	8	A	8	A	9	A	8	A	8	A	9	A	8	A	8	A	9	A	8	A	8	A	9	A		
Eastbound Through+Right					0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A		
Westbound Left					8	A	8	A	8	A	9	A	8	A	8	A	8	A	8	A	8	A	9	A	8	A	8	A	8	A	8	A	9	A		
Westbound Through+Right					0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A		
Northbound Left+Through+Right					15	B	14	B	21	C	22	C	16	C	15	B	23	C	24	C	16	C	14	B	24	C	27	D	17	C	16	C	26	D		
Southbound Left+Through+Right					16	C	13	B	23	C	20	C	17	C	14	B	24	C	21	C	17	C	14	B	27	D	25	C	18	C	15	B	29	D		
101. Aurora Pkwy at Pine Dr									5	A	6	A	3	A	2	A	5	A	6	A			5	A	6	A	3	A	2	A	5	A	6	A		
Eastbound Through+Right	Future Intersection				Not Analyzed in this Scenario				0	A	0	A	0	A	0	A	0	A	0	A	Not Analyzed in this Scenario				0	A	0	A	0	A	0	A	0	A	0	A
Westbound Left									8	A	9	A	8	A	9	A	8	A	9	A					8	A	9	A	8	A	9	A	9	A		
Westbound Through									0	A	0	A	0	A	0	A	0	A	0	A					0	A	0	A	0	A	0	A	0	A		
Northbound Left+Right													15	B	16	C												16	C	15	B					
Northbound Left									25	C	19	C					29	D	23	C					28	D	22	C			34	D	27	D		
Northbound Right									10	B	13	B					10	B	14	B					11	B	13	B			11	B	15	B		
102. Aurora Pkwy at Overlook West Access									2	A	1	A	1	A	1	A													1	A	1	A	1	A		
Eastbound Through+Right	Future Project Intersection				Future Project Intersection				Future Project Intersection				0	A	0	A	0	A	0	A	Future Project Intersection				Future Project Intersection				0	A	0	A	0	A	0	A
Westbound Left													8	A	8	A	8	A	9	A									8	A	8	A	9	A		
Westbound Through													0	A	0	A	0	A	0	A									0	A	0	A	0	A		
Northbound Left+Right													13	B	14	B	16	C	19	C									14	B	13	B	17	C		
103. Aurora Pkwy at Kings Point Access #115 (Overlook East Access)									2	A	1	A	1	A	1	A													1	A	1	A	1	A		
Eastbound Through+Right	Future Project Intersection				Future Project Intersection				Future Project Intersection				0	A	0	A	0	A	0	A	Future Project Intersection				Future Project Intersection				0	A	0	A	0	A	0	A
Westbound Left													8	A	8	A	8	A	9	A									8	A	8	A	9	A		
Westbound Through													0	A	0	A	0	A	0	A									0	A	0	A	0	A		
Northbound Left+Right													11	B	13	B	16	C	18	C									13	B	13	B	17	C		
SIGNAL CONTROL																																				
1. Gartrell Rd at Aurora Pkwy	16	B	21	C	18	B	25	C	20	B	22	C	19	B	25	C	20	B	22	C	19	B	27	C	22	C	24	C	19	B	27	C	22	C		
Eastbound Left	19	B	25	C	17	B	23	C	17	B	19	B	17	B	23	C	18	B	20	B	18	B	23	C	23	C	21	C	17	B	23	C	27	C		
Eastbound Through	20	C	27	C	21	C	29	C	21	C	24	C	21	C	29	C	21	C	24	C	22	C	31	C	23	C	26	C	22	C	31	C	24	C		
Eastbound Right	20	C	27	C	22	C	31	C	21	C	24	C	22	C	31	C	21	C	24	C	23	C	34	C	24	C	27	C	23	C	34	C	25	C		
Westbound Left	14	B	20	B	16	B	23	C	16	B	18	B	16	B	23	C	17	B	18	B	17	B	27	C	18	B	20	B	17	B	27	C	18	B		
Westbound Through	14	B	21	C	20	C	27	C	23	C	24	C	21	C	27	C	23	C	24	C	22	C	28	C	25	C	25	C	23	C	29	C	25	C		
Westbound Right	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A	0	A		
Northbound Left	15	B	18	B	16	B	17	B	17	B	19	B	16	B	16	B	17	B	19	B	16	B	16	B	16	B	19	B	16	B	16	B	16	B		
Northbound Through	18	B	21	C	20	C	21	C	20	B	23	C	20	C	21	C	20	B	23	C	20	C	21	C	19	B	23	C	20	C	21	C	19	B		
Northbound Right	19	B	28	C	22	C	29	C	21	C	28	C	22	C	29	C	21	C	28	C	23	C	29	C	20	C	28	C	23	C	29	C	20	C		
Southbound Left	12	B	22	C	15	B	34	C	15	B	27	C	15	B	34	C	15	B	27	C	15	B	41	D	15	B	30	C	15	B	41	D	15	B		
Southbound Through	14	B	14	B	17	B	16	B	17	B	18	B	17	B	17	B	17	B	18	B	18	B	17	B	17	B	19	B	18	B	17	B	17	B		
Southbound Right	12	B	13	B	18	B	16	B	25	C	20	C	18	B	15	B	26	C	21	C	18	B	16	B	27	C	22	C	18	B	16	B	27	C		

Table 1 - Peak Hour Intersection Level of Service Summary

Intersection and Lanes Groups	2022 Existing				2027 Background Scenario A - No Extension				2027 Background Scenario B - w/ Pine Dr. Ext.				2027 Bkgrd + Project Scenario A - No Extension				2027 Bkgrd + Project Scenario B - w/ Pine Dr. Ext.				2040 Background Scenario A - No Extension				2040 Background Scenario B - w/ Pine Dr. Ext.				2040 Bkgrd + Project Scenario A - No Extension				2040 Bkgrd + Project Scenario B - w/ Pine Dr. Ext.			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak					
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS				
SIGNAL CONTROL																																				
2. Pine Dr at Inspiration Dr																																				
Westbound Left	Analyzed with stop control				Analyzed with stop control				13	B	17	B	Analyzed with stop control				14	B	17	B	Analyzed with stop control				16	B	12	B	Analyzed with stop control				16	B	12	B
Westbound Right									0	A	0	A					0	A	0	A					0	A	0	A					0	A	0	A
Northbound Through									14	B	12	B					14	B	12	B					15	B	13	B					15	B	14	B
Northbound Right									16	B	23	C					17	B	24	C					19	B	8	A					19	B	8	A
Southbound Left									10	B	8	A					10	B	8	A					11	B	9	A					11	B	9	A
Southbound Through									8	A	5	A					8	A	5	A					9	A	6	A					9	A	6	A
3. Parker Rd at Aurora Pkwy					21	C	20	C					23	C	22	C					31	C	32	C					34	C	34	C				
Eastbound Left	Future Intersection				50	D	52	D	No impact to volumes or operations with Pine Drive Extension		50	D	52	D	No impact to volumes or operations with Pine Drive Extension		50	D	51	D	No impact to volumes or operations with Pine Drive Extension		50	D	51	D	No impact to volumes or operations with Pine Drive Extension		50	D	51	D	No impact to volumes or operations with Pine Drive Extension			
Eastbound Through					51	D	53	D			51	D	53	D			51	D	51	D			51	D	51	D			51	D	51	D				
Eastbound Right					52	D	56	E			52	D	56	E			53	D	54	D			53	D	54	D			53	D	54	D				
Westbound Left					52	D	49	D			55	E	50	D			64	E	51	D			77	E	53	D			77	E	53	D				
Westbound Through					47	D	49	D			47	D	49	D			47	D	47	D			47	D	47	D			47	D	47	D				
Westbound Right					48	D	43	D			50	D	42	D			51	D	39	D			55	D	38	D			55	D	38	D				
Northbound Left					65	E	65	E			65	E	65	E			66	E	65	E			66	E	65	E			66	E	65	E				
Northbound Through					17	B	19	B			17	B	21	C			34	C	29	C			36	D	32	C			36	D	32	C				
Northbound Right					10	B	13	B			11	B	15	B			12	B	22	C			13	B	25	C			13	B	25	C				
Southbound Left					59	E	58	E			59	E	57	E			58	E	57	E			57	E	58	E			57	E	58	E				
Southbound Through					14	B	13	B			14	B	13	B			17	B	31	C			17	B	31	C			17	B	31	C				
Southbound Right					8	A	7	A			8	A	7	A			8	A	8	A			8	A	8	A			8	A	8	A				
ROUNDBOUT																																				
5. Aurora Pkwy at Kings Point Dr					4	A	4	A					5	A	5	A					6	A	6	A					6	A	6	A				
Eastbound Left+Through	Future Intersection				4	A	4	A	No impact to volumes or operations with Pine Drive Extension		4	A	5	A	No impact to volumes or operations with Pine Drive Extension		4	A	6	A	No impact to volumes or operations with Pine Drive Extension		4	A	6	A	No impact to volumes or operations with Pine Drive Extension		4	A	6	A	No impact to volumes or operations with Pine Drive Extension			
Eastbound Through+Right					4	A	4	A			4	A	5	A			4	A	5	A			4	A	6	A			4	A	6	A				
Westbound Left+Through					5	A	4	A			5	A	4	A			5	A	6	A			6	A	6	A			6	A	6	A				
Westbound Through+Right					5	A	4	A			5	A	4	A			5	A	5	A			6	A	6	A			6	A	6	A				
Northbound Left+Through+Right					3	A	4	A			4	A	5	A			4	A	5	A			4	A	6	A			4	A	6	A				
Southbound Left+Through+Right					5	A	4	A			6	A	4	A			9	A	6	A			10	A	7	A			10	A	7	A				

Note: Delay represented in average seconds per vehicle.

Table 5 - Trip Generation Summary

Land Use	Size	Unit	Internal Capture	Non-Auto Factor	Average Daily Trips				AM Peak Hour Trips				PM Peak Hour Trips			
					Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
ITE#210: Single Family Detached Housing	269	du	1.00	0.95	9.43	2,410	1,205	1,205	0.70	179	47	132	0.94	240	151	89
Total Trips						2,410	1,205	1,205		179	47	132		240	151	89

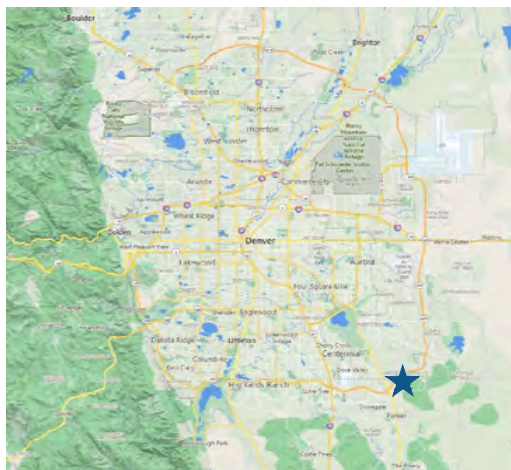
Source: ITE Trip Generation 11th Edition, 2021.

Table 9 - Peak Hour 95th Percentile Queue Summary and Proposed Auxiliary Lanes

Intersection and Lanes Groups	Existing Storage Length (Feet)	2022 Existing		2027 Bkgrd Scenario A - No Extension		2027 Bkgrd Scenario B - w/ Pine Dr. Ext.		2027 Bkgrd + Project Scenario A - No Extension		2027 Bkgrd + Project Scenario B - w/ Pine Dr. Ext.		2040 Bkgrd Scenario A - No Extension		2040 Bkgrd Scenario B - w/ Pine Dr. Ext.		2040 Bkgrd + Project Scenario A - No Extension		2040 Bkgrd + Project Scenario B - w/ Pine Dr. Ext.		Max. Queue	City Requirement (NR-B)				Proposed Future Storage
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM		Speed (mph)	Total (feet)	Storage (feet)	Taper (feet)	
1. Gartrell Rd at Aurora Pkwy																									
Eastbound Left	180'	27'	42'	121'	110'	163'	167'	136'	120'	175'	175'	133'	120'	213'	192'	149'	130'	245'	213'	245'	35	310	190	120	250'
Eastbound Through	-	10'	26'	35'	68'	50'	83'	38'	70'	52'	84'	46'	93'	62'	109'	49'	94'	65'	111'	-	-	-	-	-	-
Eastbound Right	475'	0'	0'	0'	23'	0'	22'	1'	24'	0'	23'	15'	46'	21'	44'	18'	47'	22'	44'	47'	35	310	190	120	190'
Westbound Left	260'	148'	142'	162'	151'	147'	131'	162'	151'	147'	132'	169'	168'	150'	153'	169'	168'	150'	153'	169'	35	310	190	120	190'
Westbound Through	-	11'	26'	86'	62'	81'	57'	87'	65'	81'	60'	107'	75'	99'	70'	108'	77'	99'	73'	-	-	-	-	-	-
Westbound Right	230'	77'	58'	214'	62'	135'	59'	223'	62'	139'	58'	244'	62'	179'	60'	252'	62'	185'	59'	252'	35	310	190	120	255'
Northbound Left	260'	9'	22'	44'	53'	45'	51'	45'	57'	45'	53'	52'	60'	55'	67'	52'	62'	55'	68'	68'	40	370	226	144	226'
Northbound Through	-	117'	102'	131'	116'	98'	67'	131'	118'	98'	68'	134'	122'	100'	72'	134'	122'	100'	72'	-	-	-	-	-	-
Northbound Right	145'	46'	54'	48'	58'	43'	46'	48'	59'	43'	47'	50'	60'	45'	47'	50'	60'	45'	47'	60'	40	370	226	144	226'
Southbound Left	435'	71'	194'	79'	313'	81'	234'	79'	325'	81'	241'	82'	358'	83'	282'	82'	287'	83'	283'	358'	40	370	226	144	360'
Southbound Through	-	78'	96'	93'	122'	41'	93'	93'	126'	41'	95'	95'	132'	43'	102'	96'	133'	43'	103'	-	-	-	-	-	-
Southbound Right	880'	0'	0'	39'	27'	59'	49'	40'	39'	59'	51'	39'	14'	63'	53'	40'	30'	63'	54'	63'	40	370	226	144	226'
2. Pine Dr at Inspiration Dr																									
Westbound Left+Right	-	0'	0'	0'	0'	170'	109'	0'	0'	173'	112'	0'	0'	242'	128'	0'	0'	245'	131'	-	-	-	-	-	-
Northbound Through+Right	-	0'	0'	0'	0'			0'	0'			0'	0'			0'	0'			-	-	-	-	-	-
Northbound Through	-					96'	159'			99'	205'			100'	195'			105'	215'	-	-	-	-	-	-
Northbound Right	-					45'	50'			45'	58'			47'	20'			47'	20'	47'	40	370	226	144	226'
Southbound Left+Through	-	0'	0'	0'	0'			0'	0'			0'	0'			0'	0'			-	-	-	-	-	-
Southbound Left	-					14'	11'			19'	17'			17'	15'			23'	18'	23'	40	370	226	144	226'
Northbound Through	-					78'	40'			86'	53'			73'	50'			82'	55'	-	30	-	-	-	-
3. Parker Rd at Aurora Pkwy																									
Eastbound Left	-	Future Intersection		45'	57'	No impact to volumes or operations with Pine Drive Extension		45'	57'	No impact to volumes or operations with Pine Drive Extension		51'	62'	No impact to volumes or operations with Pine Drive Extension		51'	62'	No impact to volumes or operations with Pine Drive Extension		62'	35	310	190	120	190'
Eastbound Through	-			17'	17'			17'	17'			17'	17'			-	-		-	-	-	-	-		
Eastbound Right	-			0'	0'			0'	0'			0'	0'			0'	35		310	190	120	190'			
Westbound Left	-			198'	94'			243'	108'			311'	171'			352'	202'			352'	35	310	190	120	350'
Westbound Through	-			16'	16'			16'	16'			16'	16'			16'	16'			-	-	-	-	-	-
Westbound Right	-			167'	94'			188'	105'			214'	148'			235'	163'			235'	35	310	190	120	240'
Northbound Left	-			60'	52'			60'	52'			67'	60'			67'	60'			67'	45	435	273	162	273'
Northbound Through	-			486'	664'			504'	707'			1019'	835'			1043'	835'			-	-	-	-	-	-
Northbound Right	-			27'	43'			32'	48'			37'	107'			40'	166'			166'	45	435	273	162	273'
Southbound Left	-			96'	123'			103'	147'			129'	191'			135'	220'			220'	45	435	273	162	273'
Southbound Through	-			424'	442'			424'	442'			575'	1036'			575'	1036'			-	-	-	-	-	-
Southbound Right	-			0'	0'			0'	0'			0'	2'			0'	2'			2'	45	435	273	162	273'
4. Ireland Way at Aurora Pkwy																									
Eastbound Left	-	Future Intersection		0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	3'	35	310	190	120	190'
Eastbound Through+Right	-			0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	-	-	-	-	-	-
Westbound Left	-			0'	0'	0'	3'	0'	0'	0'	3'	0'	3'	0'	3'	0'	3'	0'	3'	3'	35	310	190	120	190'
Westbound Through+Right	-			0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	-	-	-	-	-	-
Northbound Left+Through+Right	-			10'	10'	18'	18'	13'	13'	10'	18'	15'	13'	25'	30'	15'	18'	28'	33'	-	-	-	-	-	-
Southbound Left+Through+Right	-			13'	10'	20'	18'	13'	13'	13'	20'	18'	13'	25'	25'	18'	15'	33'	30'	-	-	-	-	-	-

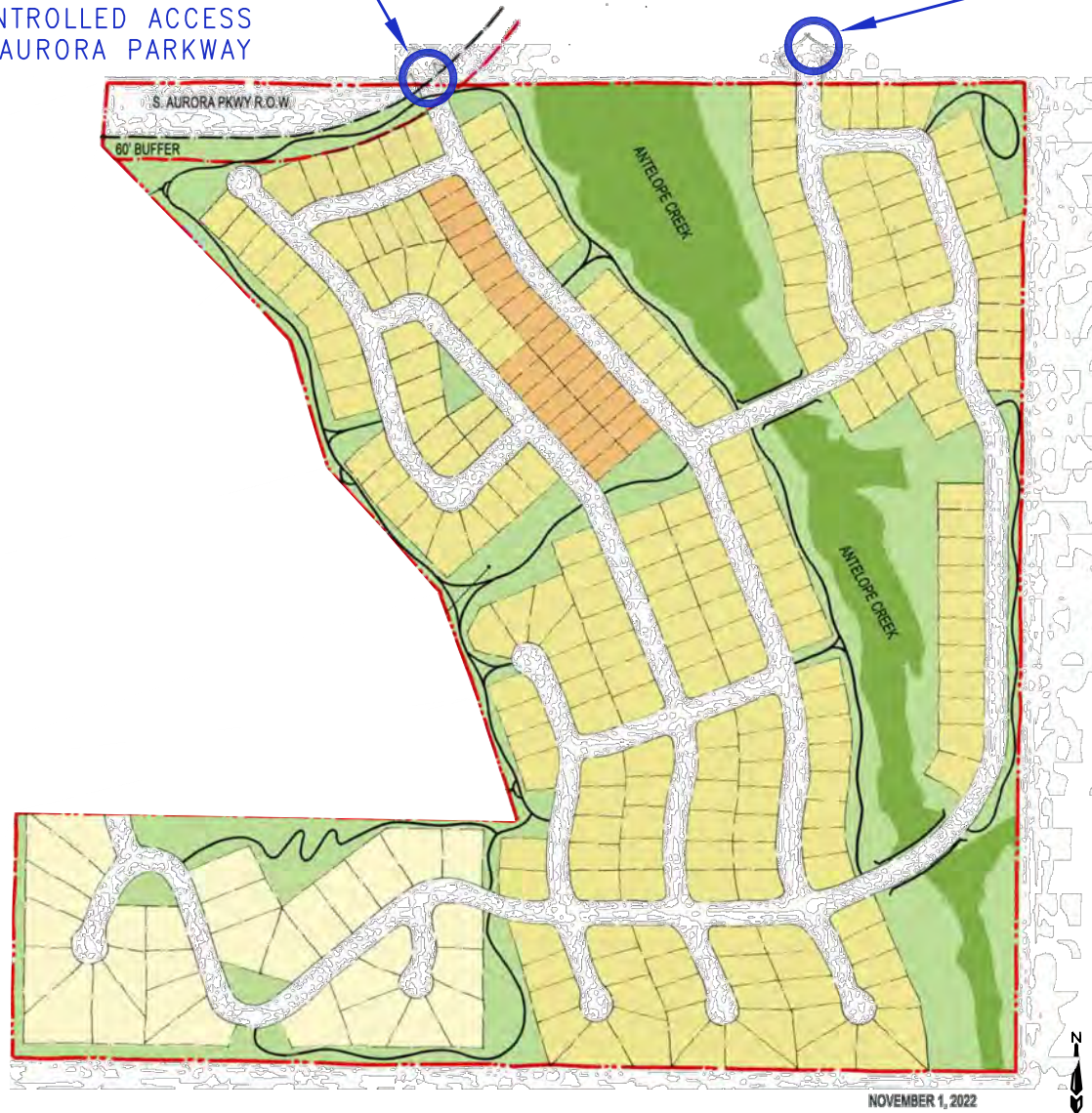
Table 9 - Peak Hour 95th Percentile Queue Summary and Proposed Auxiliary Lanes

Intersection and Lanes Groups	Existing Storage Length (Feet)	2022 Existing		2027 Bkgrd Scenario A - No Extension		2027 Bkgrd Scenario B - w/ Pine Dr. Ext.		2027 Bkgrd + Project Scenario A - No Extension		2027 Bkgrd + Project Scenario B - w/ Pine Dr. Ext.		2040 Bkgrd Scenario A - No Extension		2040 Bkgrd Scenario B - w/ Pine Dr. Ext.		2040 Bkgrd + Project Scenario A - No Extension		2040 Bkgrd + Project Scenario B - w/ Pine Dr. Ext.		Max. Queue	City Requirement (NR-B)				Proposed Future Storage
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM		Speed (mph)	Total (feet)	Storage (feet)	Taper (feet)	
5. Aurora Pkwy at Kings Point Dr																									
Eastbound Left+Through	-	Future Intersection	0'	25'	No impact to volumes or operations with Pine Drive Extension	0'	25'	No impact to volumes or operations with Pine Drive Extension	25'	25'	No impact to volumes or operations with Pine Drive Extension	25'	25'	No impact to volumes or operations with Pine Drive Extension	-	-	-	-	-	-	-	-	-	-	-
Eastbound Through+Right	-		0'	25'		0'	25'		25'	25'		25'	50'		-	-	-	-	-	-					
Westbound Left+Through	-		25'	0'		25'	0'		25'	25'		25'	25'		-	-	-	-	-	-					
Westbound Through+Right	-		25'	0'		25'	25'		25'	25'		25'	25'		-	-	-	-	-	-					
Northbound Left+Through+Right	-		0'	0'		0'	0'		0'	0'		0'	0'		-	-	-	-	-	-					
Southbound Left+Through+Right	-		0'	0'		0'	0'		50'	25'		50'	25'		-	-	-	-	-	-					
101. Aurora Pkwy at Pine Dr																									
Eastbound Through+Right	-	Future Intersection	Not Analyzed in this Scenario	0'	0'	0'	0'	Not Analyzed in this Scenario	0'	0'	0'	0'	0'	0'	0'	-	-	-	-	-	-	-	-	-	
Westbound Left	-			13'	10'	0'	5'		15'	13'		15'		13'	0'	3'	15'	13'	15'	35	310	190	120	190'	
Westbound Through	-			0'	0'	0'	0'		0'	0'		0'		0'	0'	0'	0'	0'	-	-	-	-	-	-	-
Northbound Left+Right	-					33'	23'					38'		18'				-	-	-	-	-	-	-	-
Northbound Left				25'	13'				35'	18'		33'		18'			45'	25'	45'	25	180	90	90	90'	
Northbound Right				23'	55'				23'	63'		23'		60'			25'	68'	68'	25	180	90	90	90'	
102. Aurora Pkwy at Overlook West Access																									
Eastbound Through+Right	-	Future Project Intersection	Future Project Intersection	Future Project Intersection	0'	0'	0'	0'	Future Project Intersection	Future Project Intersection	0'	0'	0'	0'	-	-	-	-	-	-	-	-			
Westbound Left	-				0'	3'	0'	3'			0'	3'	0'	3'	3'	35	310	190	120	190'					
Westbound Through	-				0'	0'	0'	0'			0'	0'	0'	0'	-	-	-	-	-	-					
Northbound Left+Right	-				15'	10'	15'	13'			18'	10'	18'	15'	-	-	-	-	-	-					
103. Aurora Pkwy at Kings Point Access #115 (Overlook East Access)																									
Eastbound Through+Right	-	Future Project Intersection	Future Project Intersection	Future Project Intersection	0'	0'	0'	0'	Future Project Intersection	Future Project Intersection	0'	0'	0'	0'	-	-	-	-	-	-	-	-			
Westbound Left	-				0'	3'	0'	3'			0'	3'	0'	3'	3'	35	310	190	120	190'					
Westbound Through	-				0'	0'	0'	0'			0'	0'	0'	0'	-	-	-	-	-	-					
Northbound Left+Right	-				10'	10'	15'	13'			13'	8'	15'	15'	-	-	-	-	-	-					



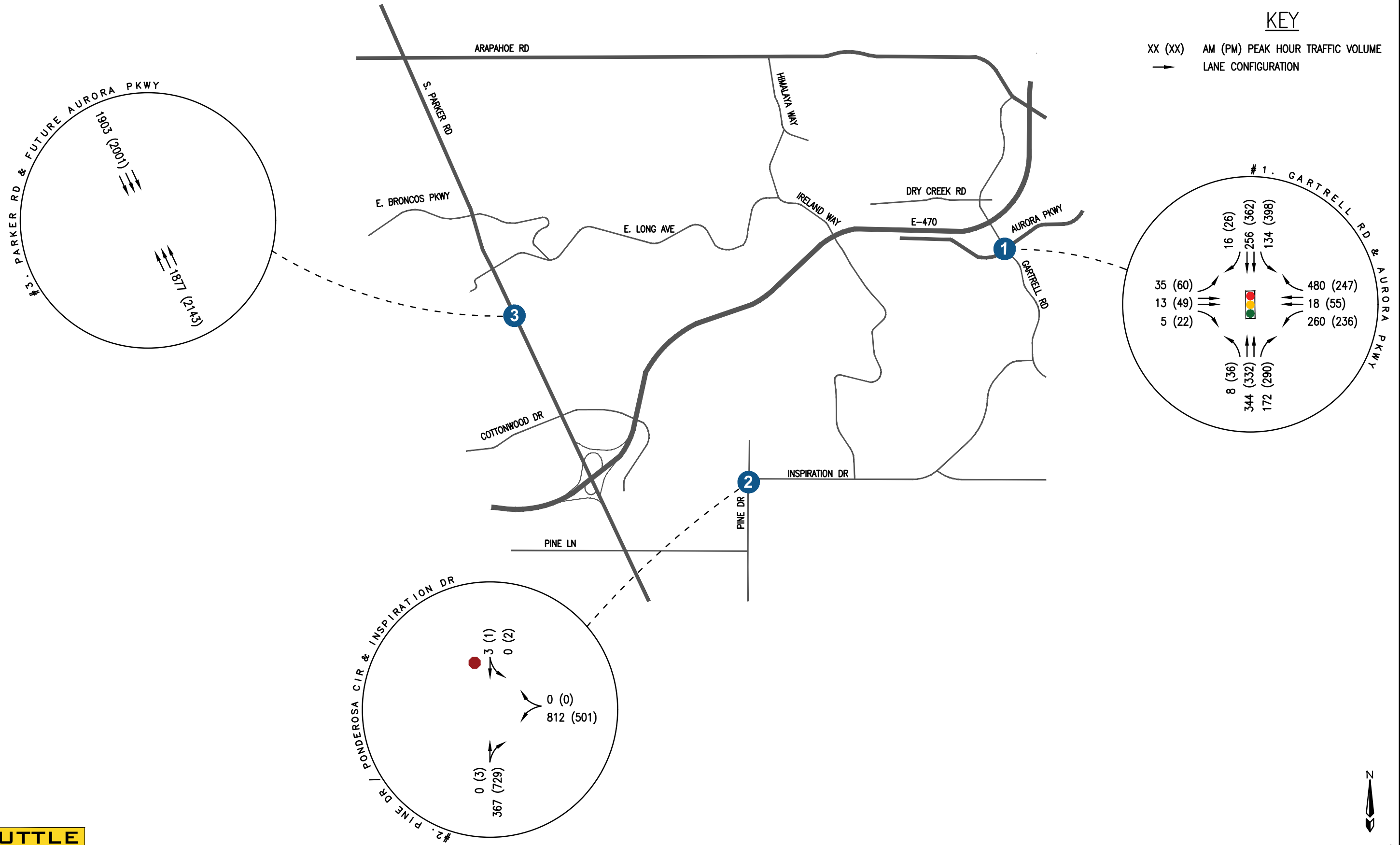
PROPOSED
FULL-MOVEMENT STOP
CONTROLLED ACCESS
AT AURORA PARKWAY

PROPOSED
FULL-MOVEMENT STOP
CONTROLLED ACCESS
AT AURORA PARKWAY



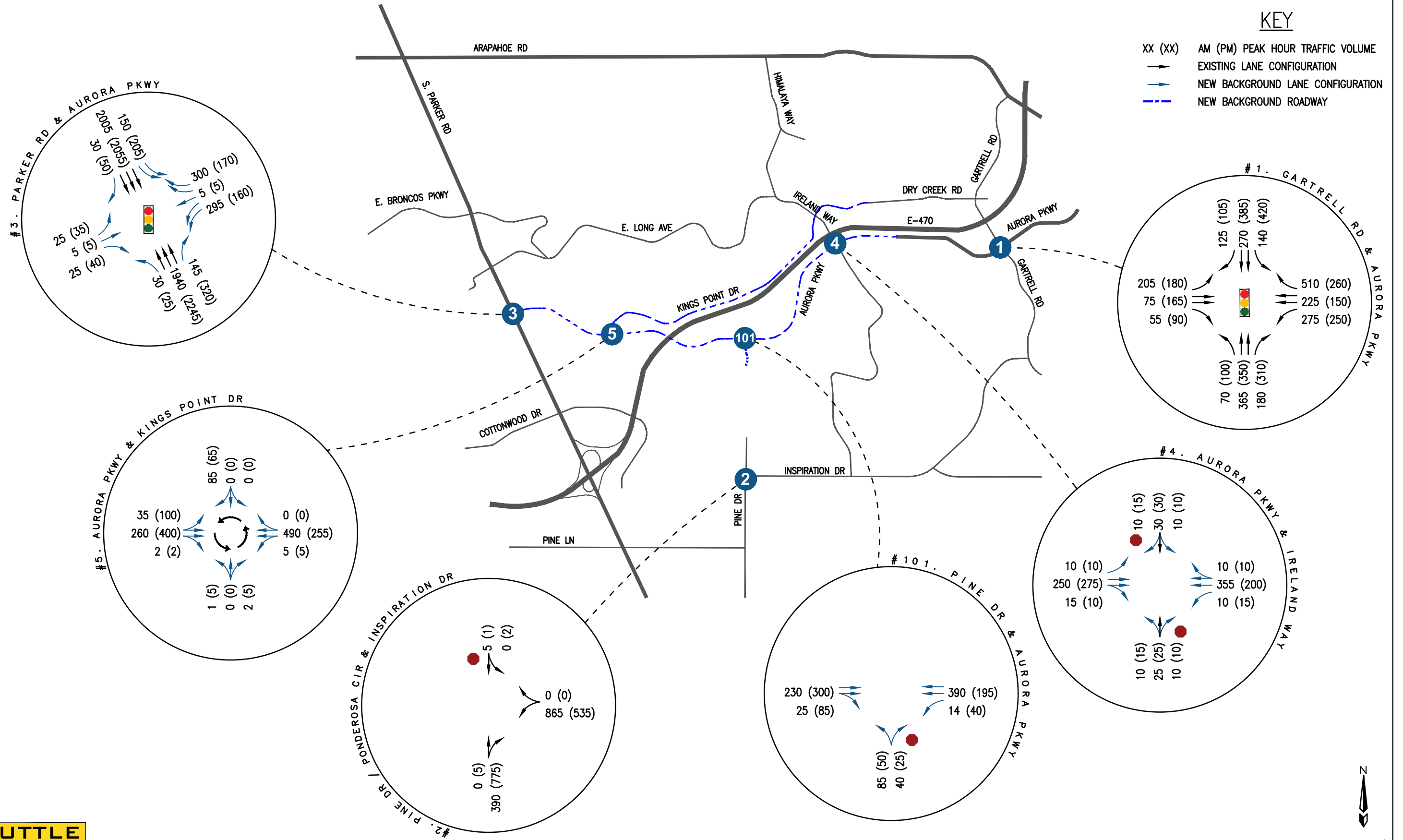
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 → LANE CONFIGURATION



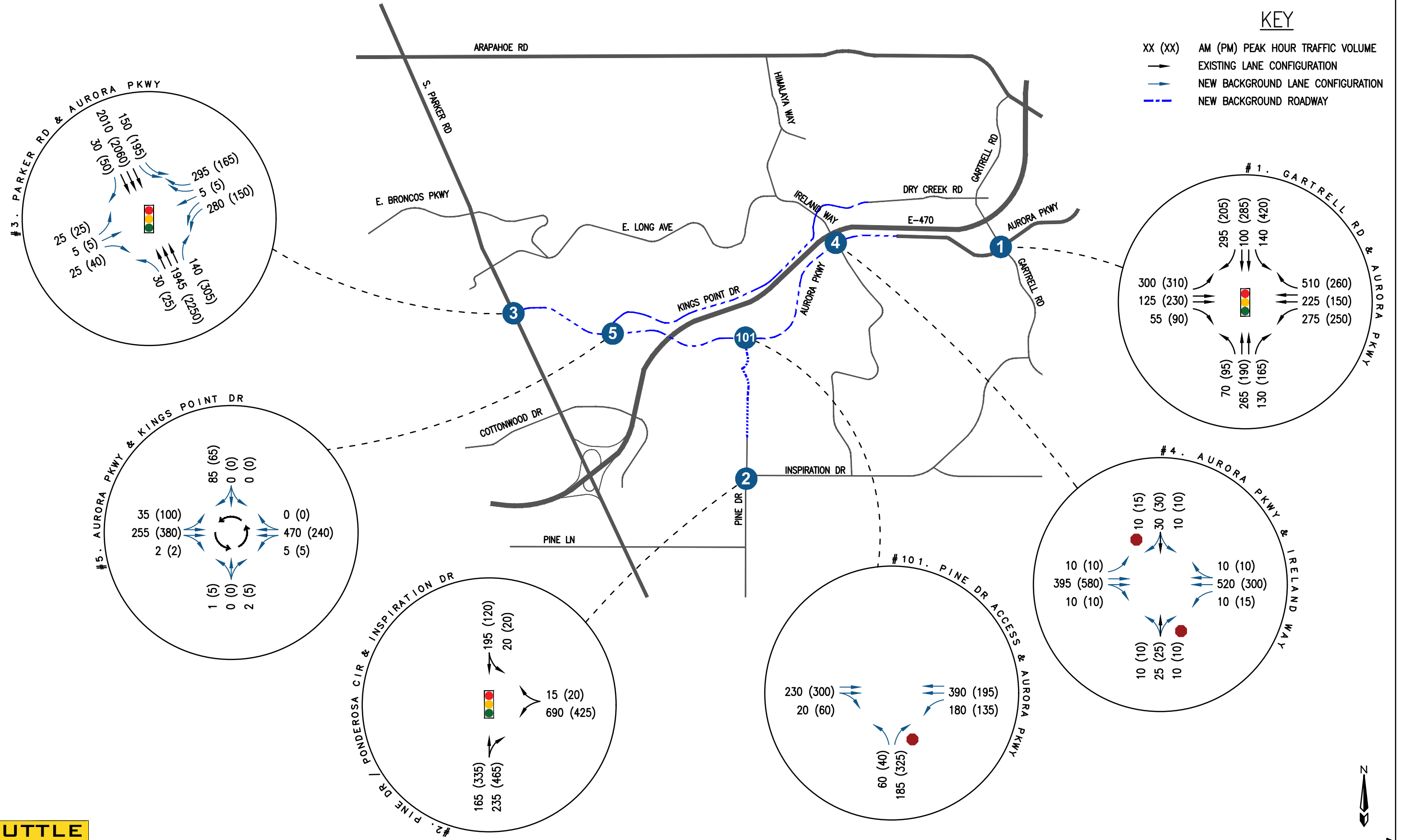
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- EXISTING LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- NEW BACKGROUND ROADWAY



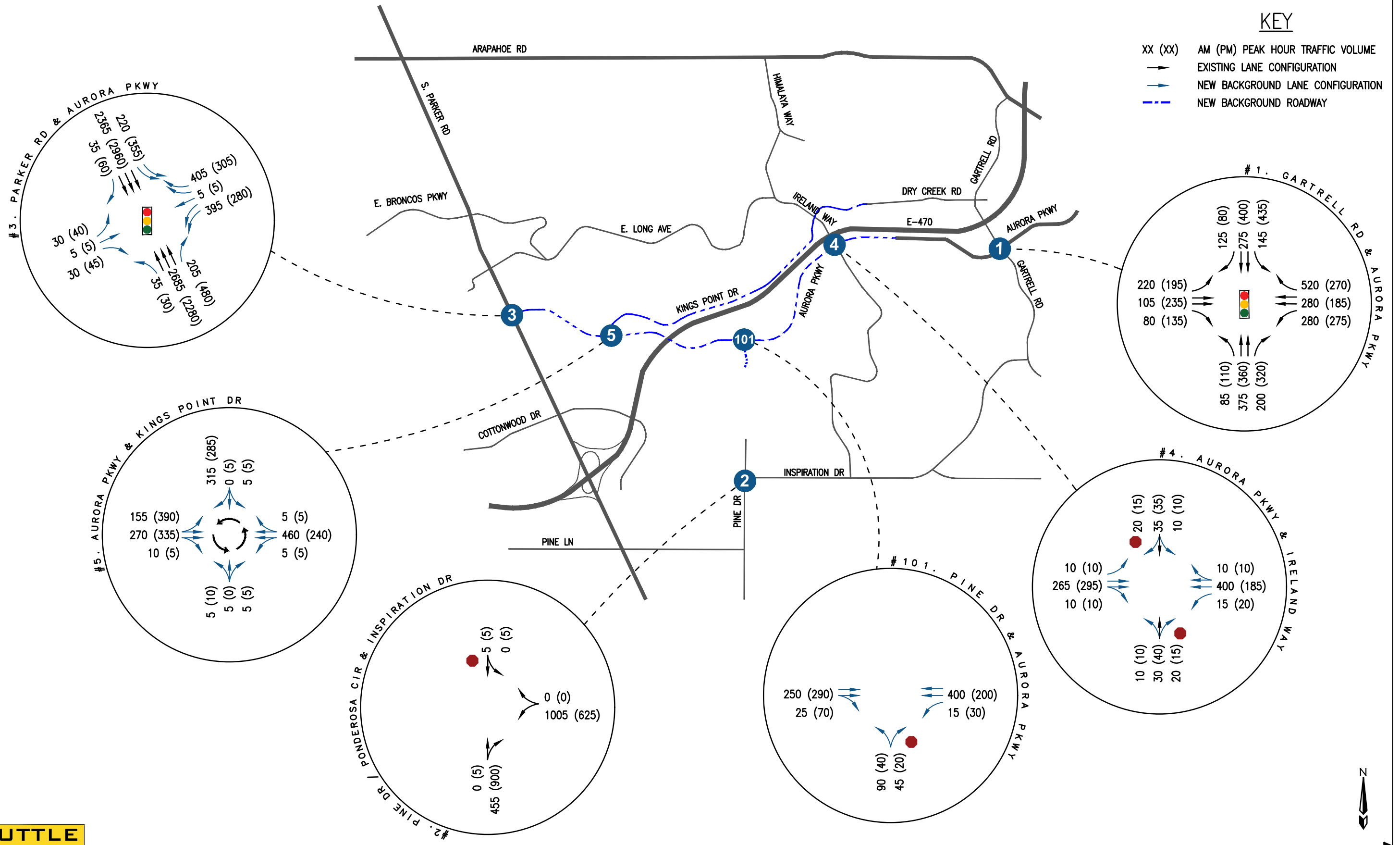
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- NEW BACKGROUND LANE CONFIGURATION
- - - NEW BACKGROUND ROADWAY



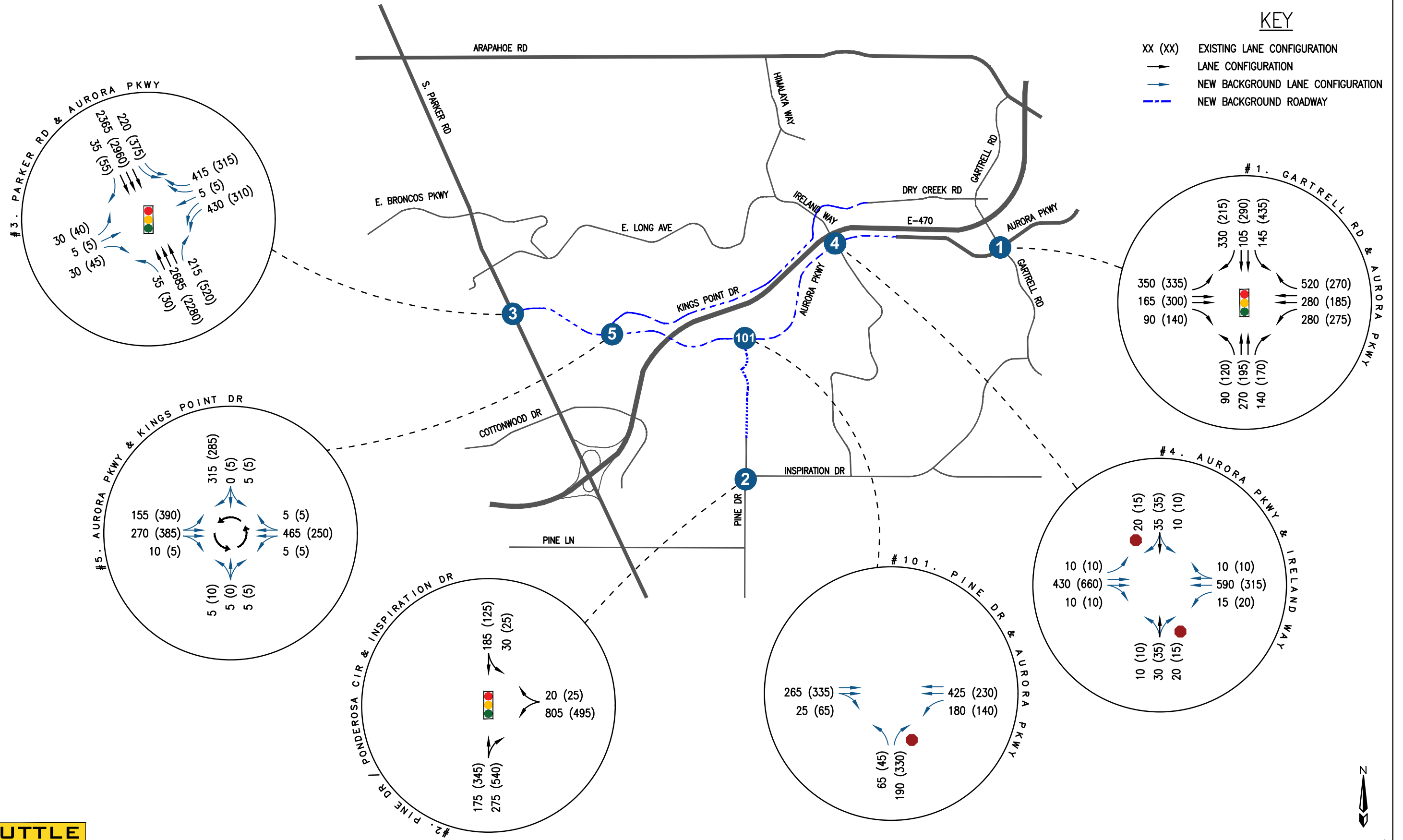
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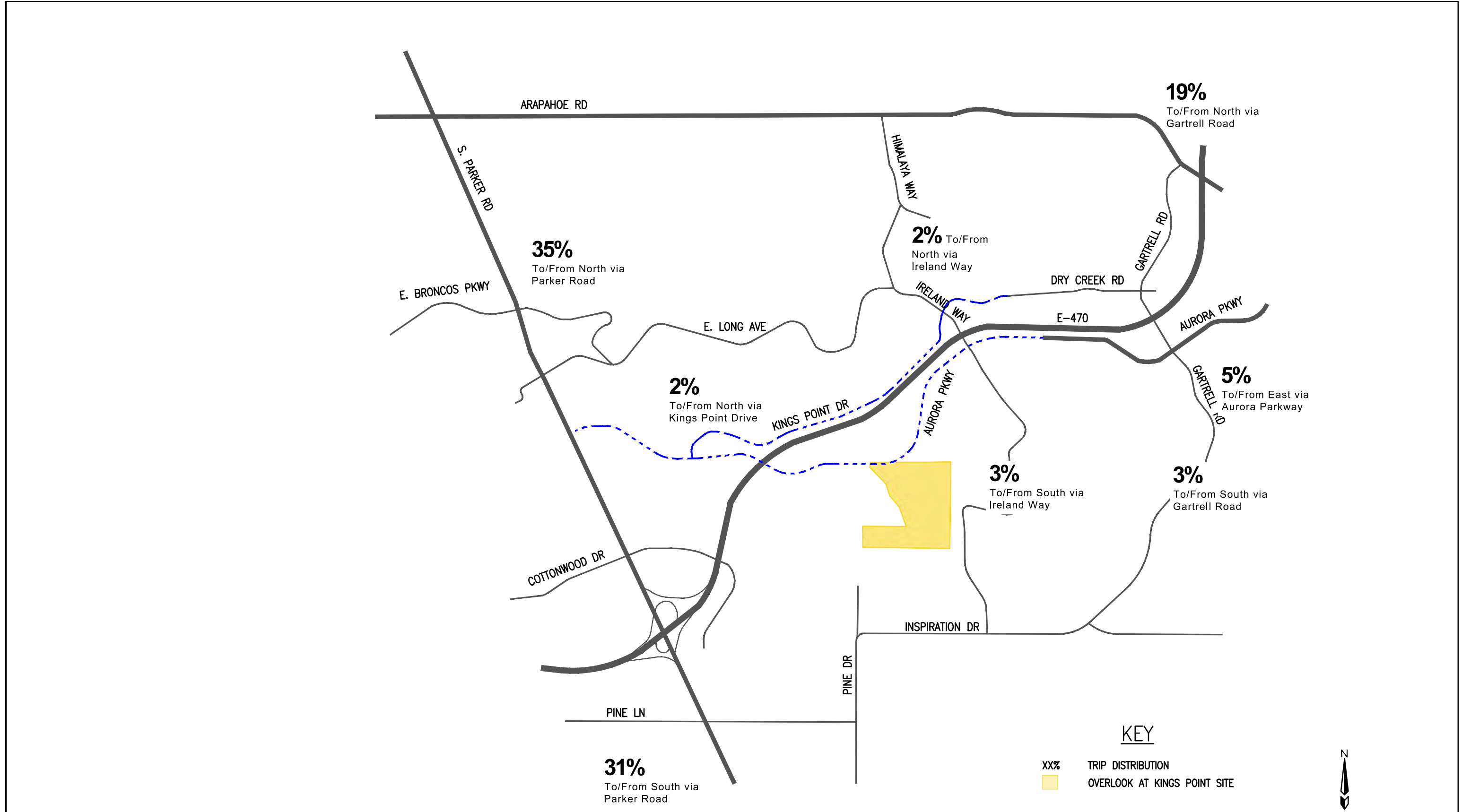
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- EXISTING LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- - - NEW BACKGROUND ROADWAY

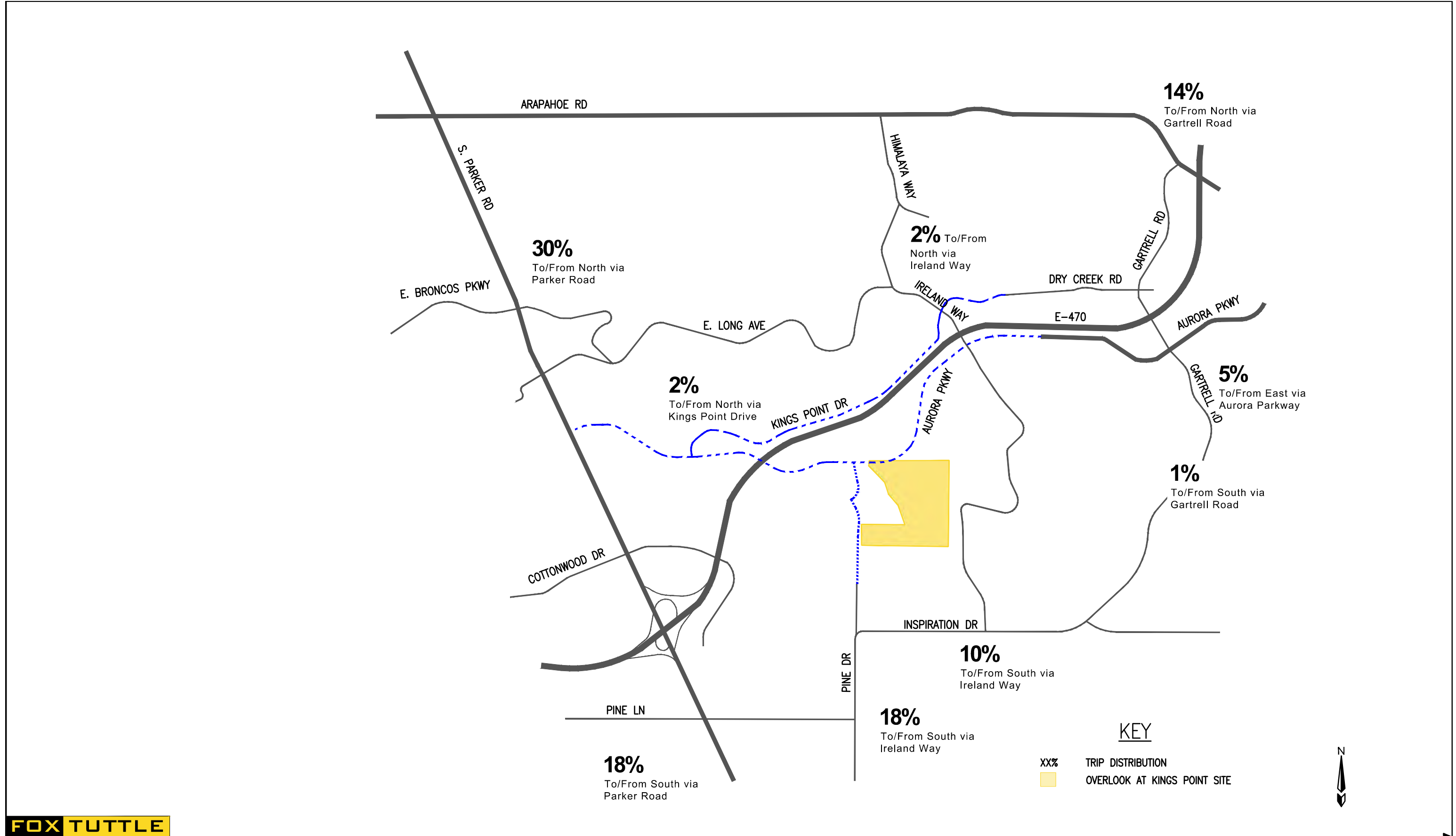


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- NEW BACKGROUND LANE CONFIGURATION
- - - NEW BACKGROUND ROADWAY

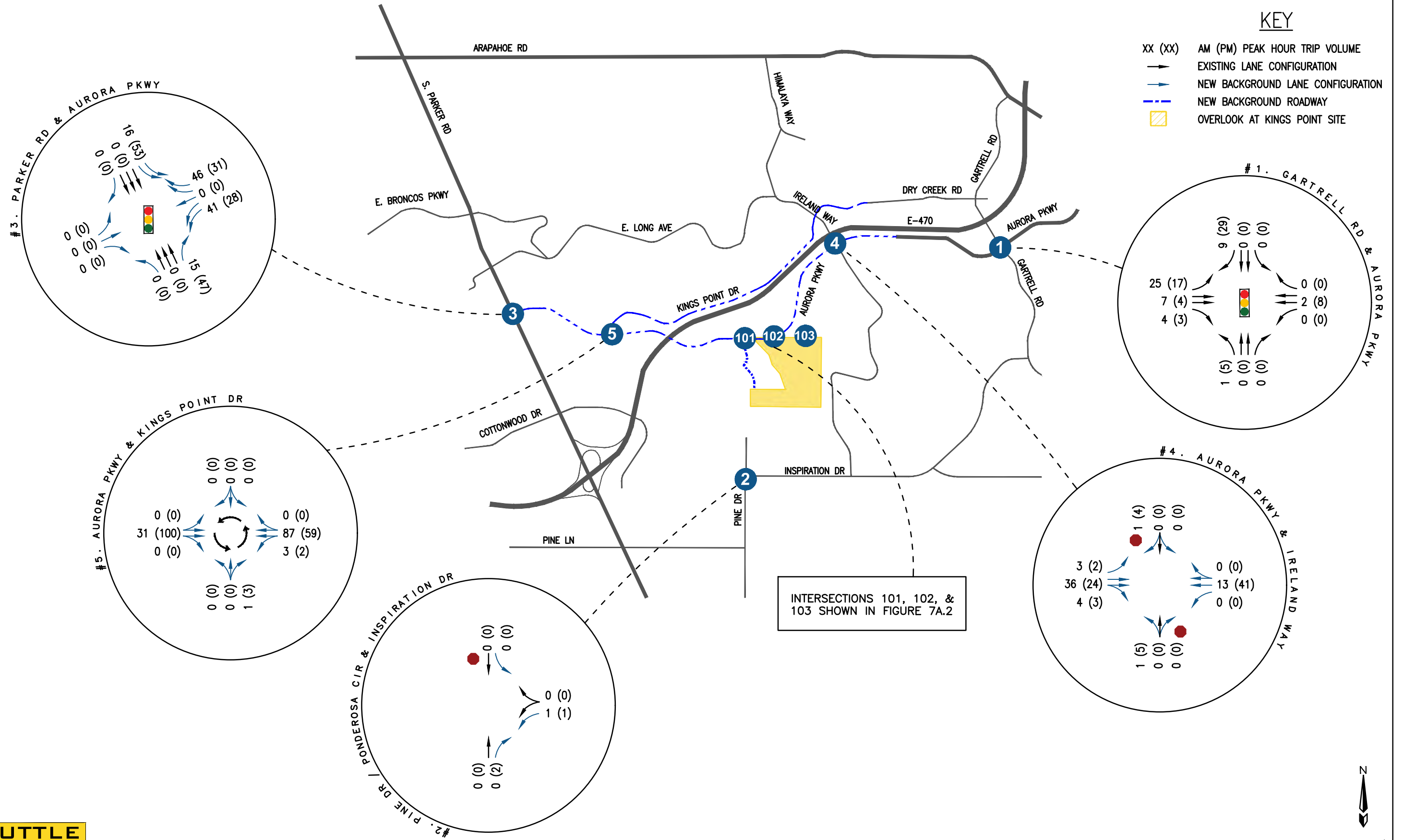






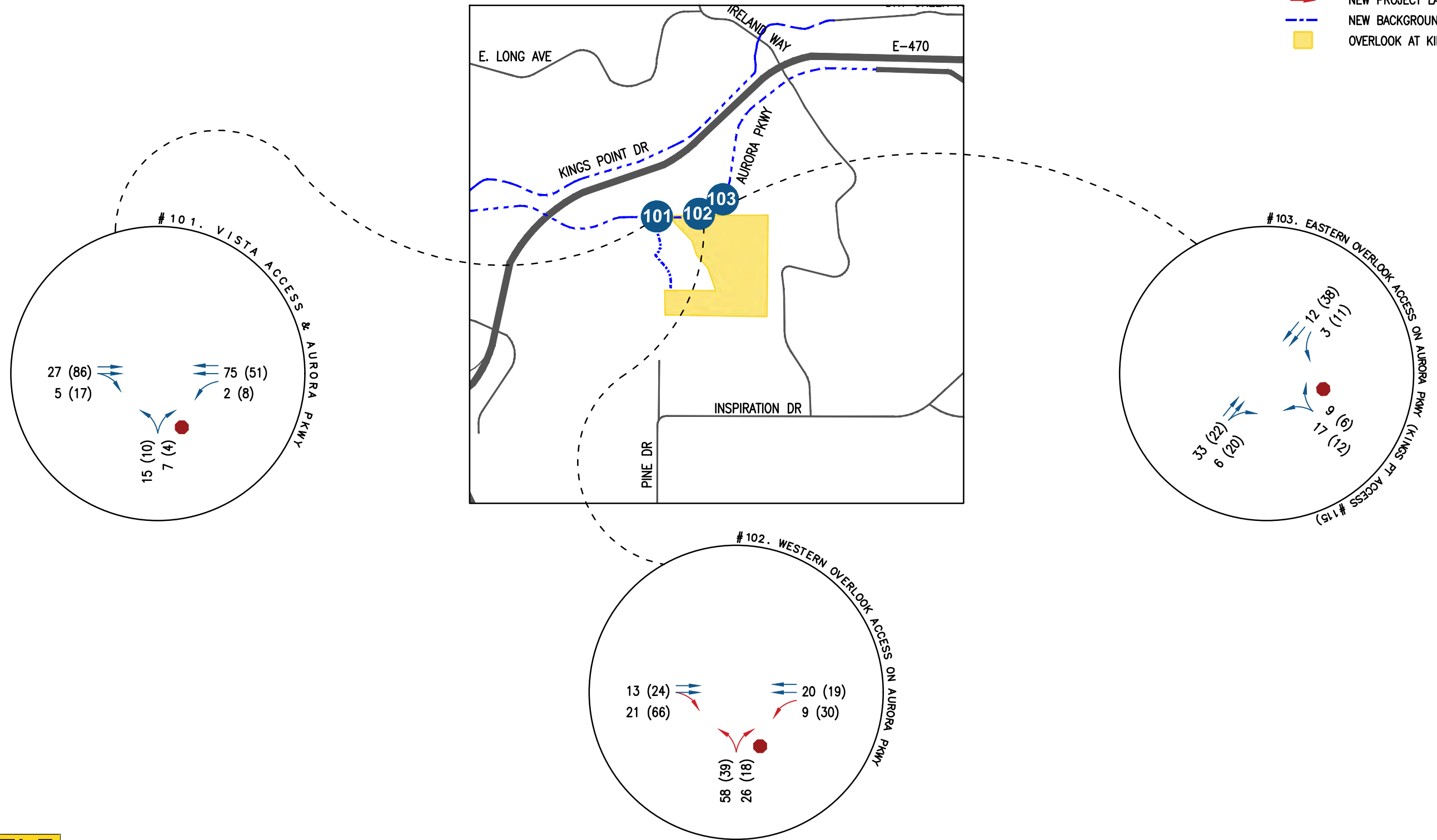
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- XX (XX) AM (PM) PEAK HOUR TRIP VOLUME
- EXISTING LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- NEW BACKGROUND ROADWAY
- OVERLOOK AT KINGS POINT SITE



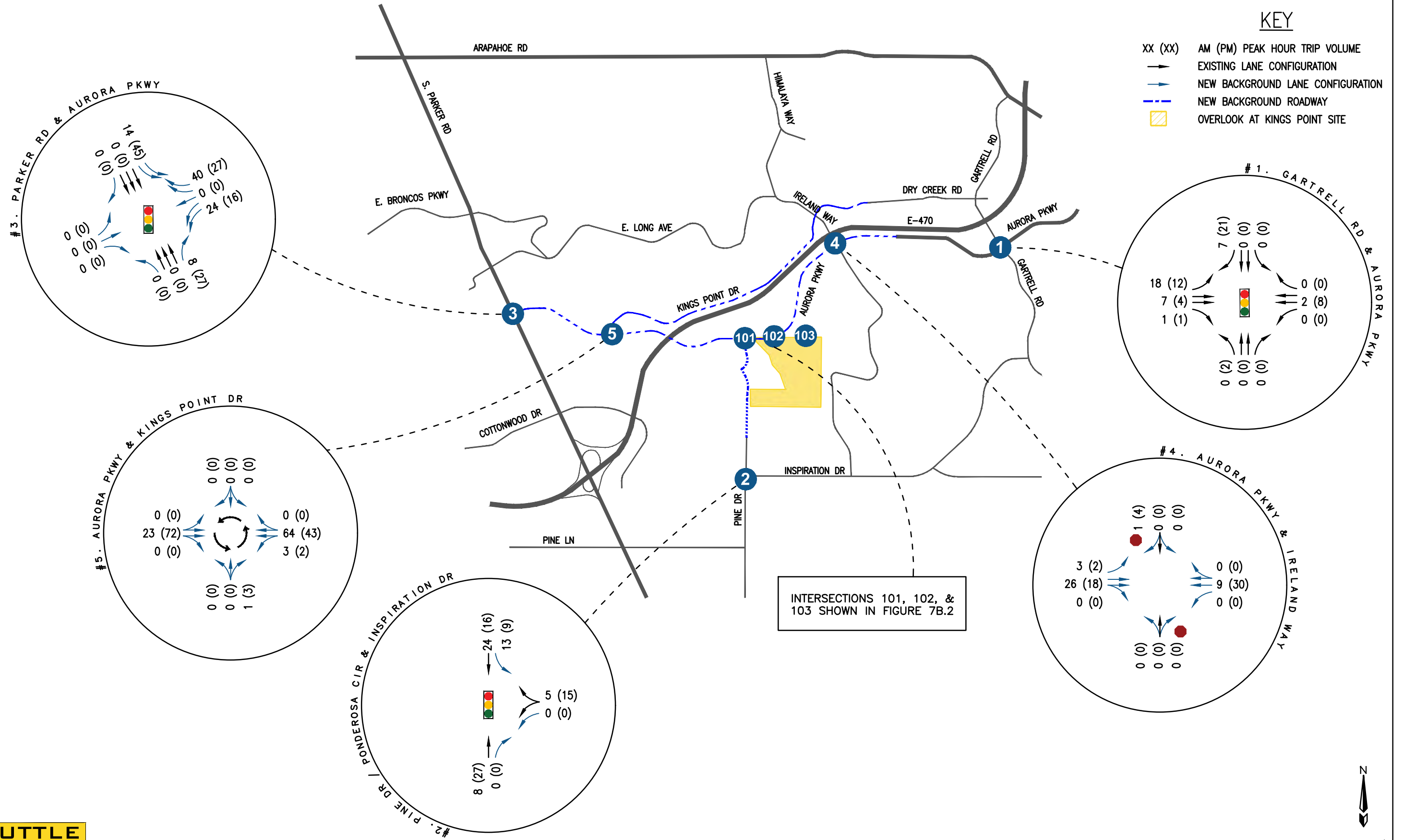
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- EXISTING LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- NEW PROJECT LANE CONFIGURATION
- - - NEW BACKGROUND ROADWAY
- OVERLOOK AT KINGS POINT SITE



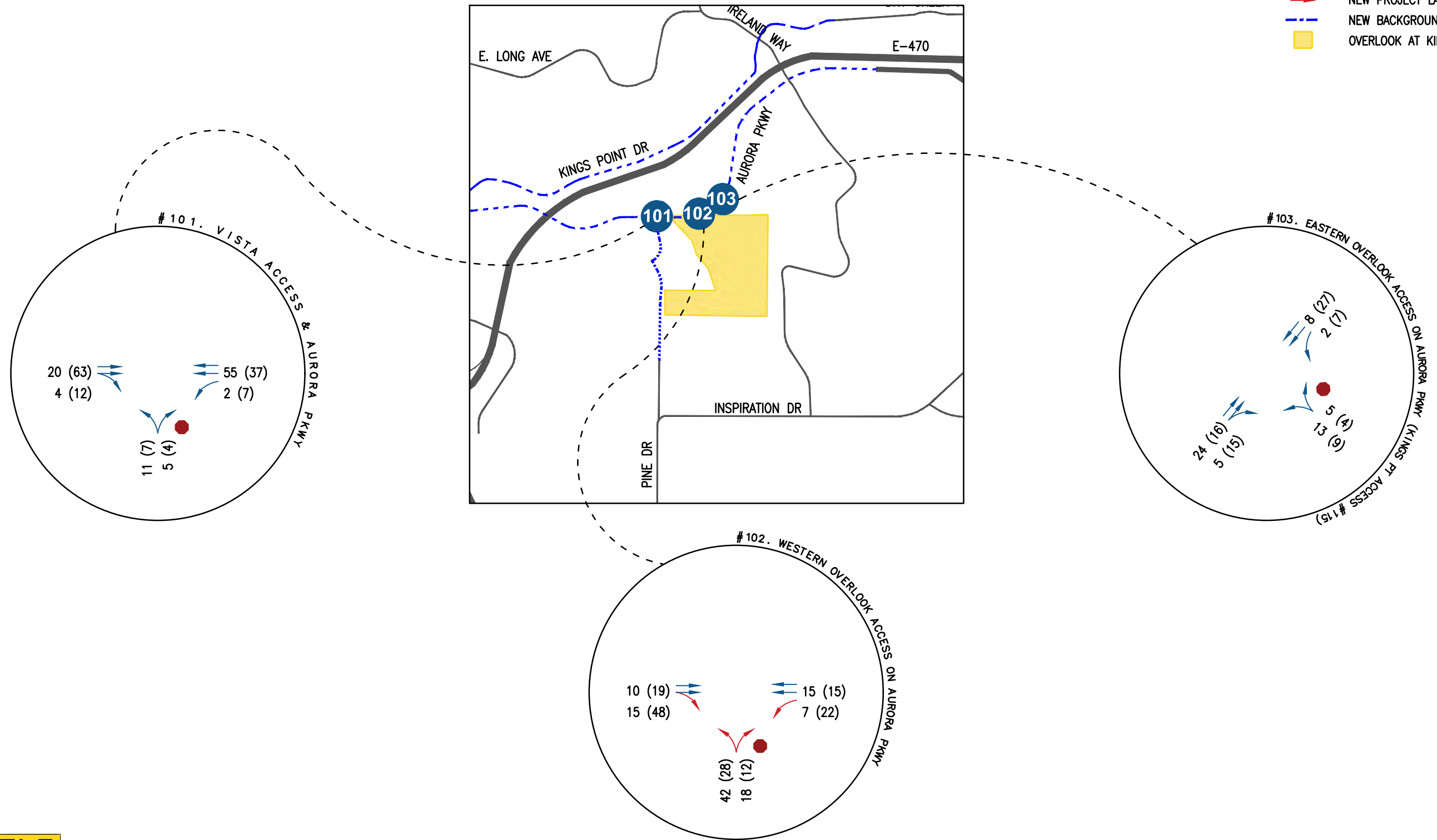
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- EXISTING LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
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- OVERLOOK AT KINGS POINT SITE



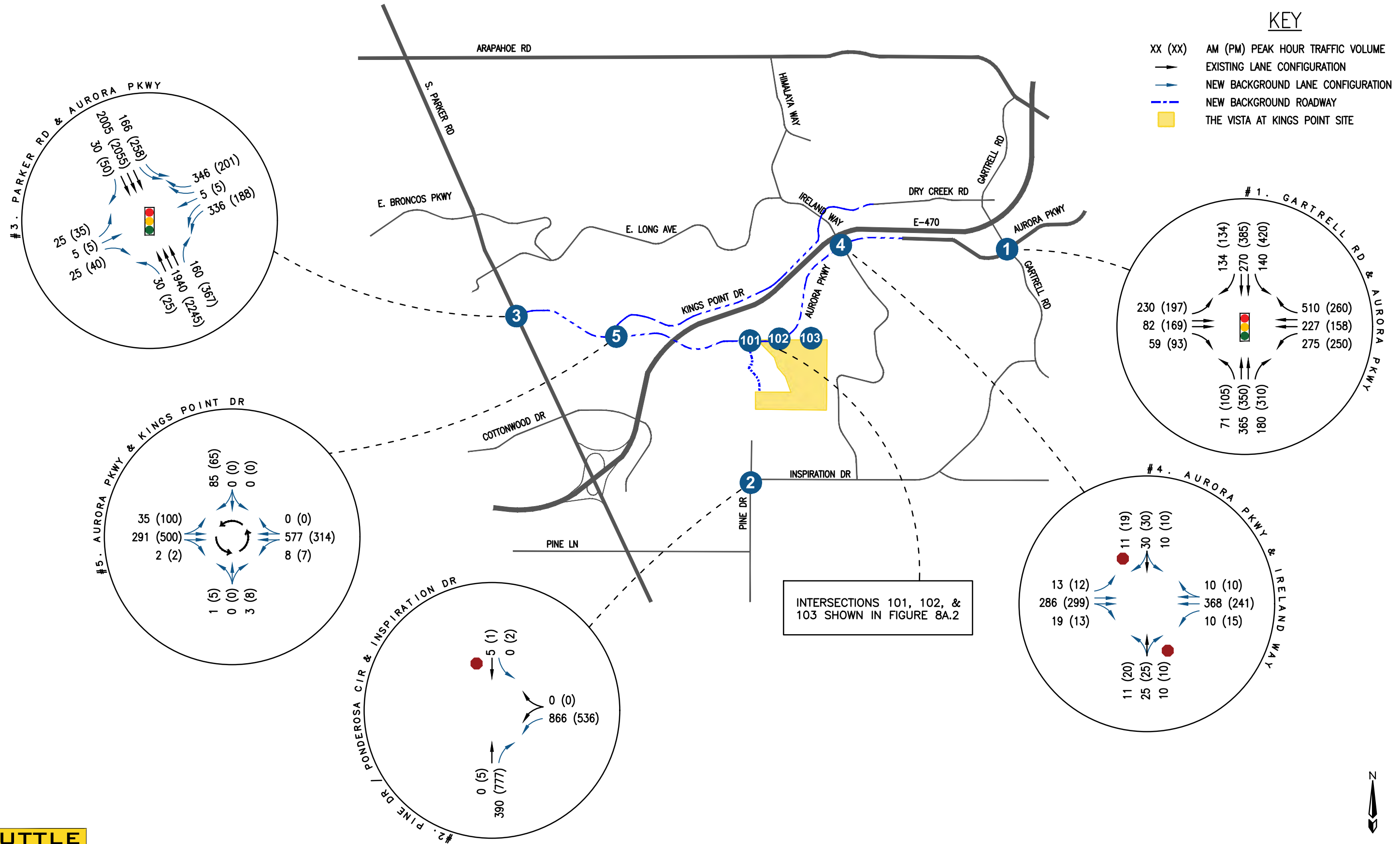
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- NEW BACKGROUND LANE CONFIGURATION
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- - - NEW BACKGROUND ROADWAY
- OVERLOOK AT KINGS POINT SITE



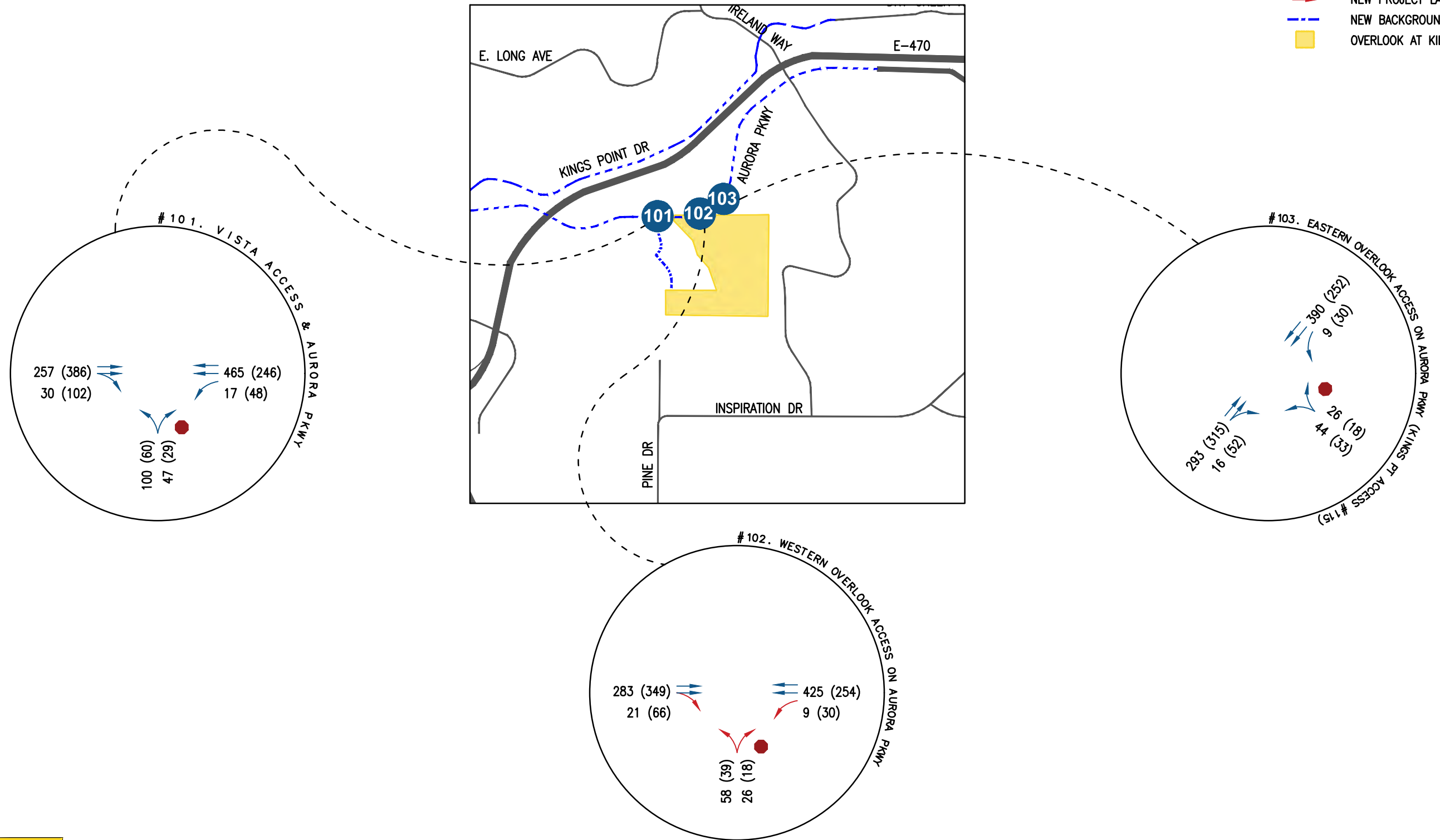
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- EXISTING LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- - - NEW BACKGROUND ROADWAY
- THE VISTA AT KINGS POINT SITE



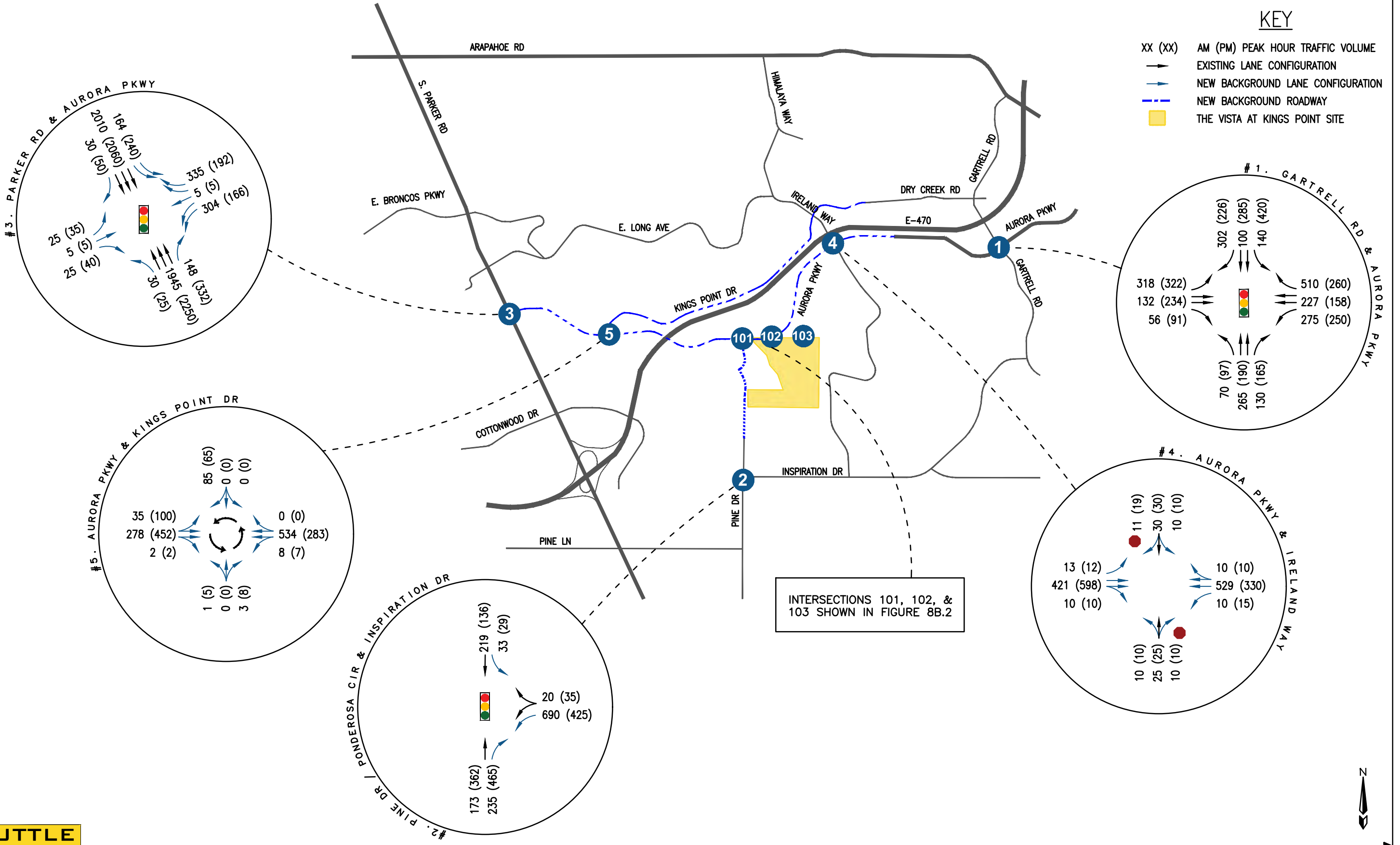
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- EXISTING LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- NEW PROJECT LANE CONFIGURATION
- - - NEW BACKGROUND ROADWAY
- OVERLOOK AT KINGS POINT SITE



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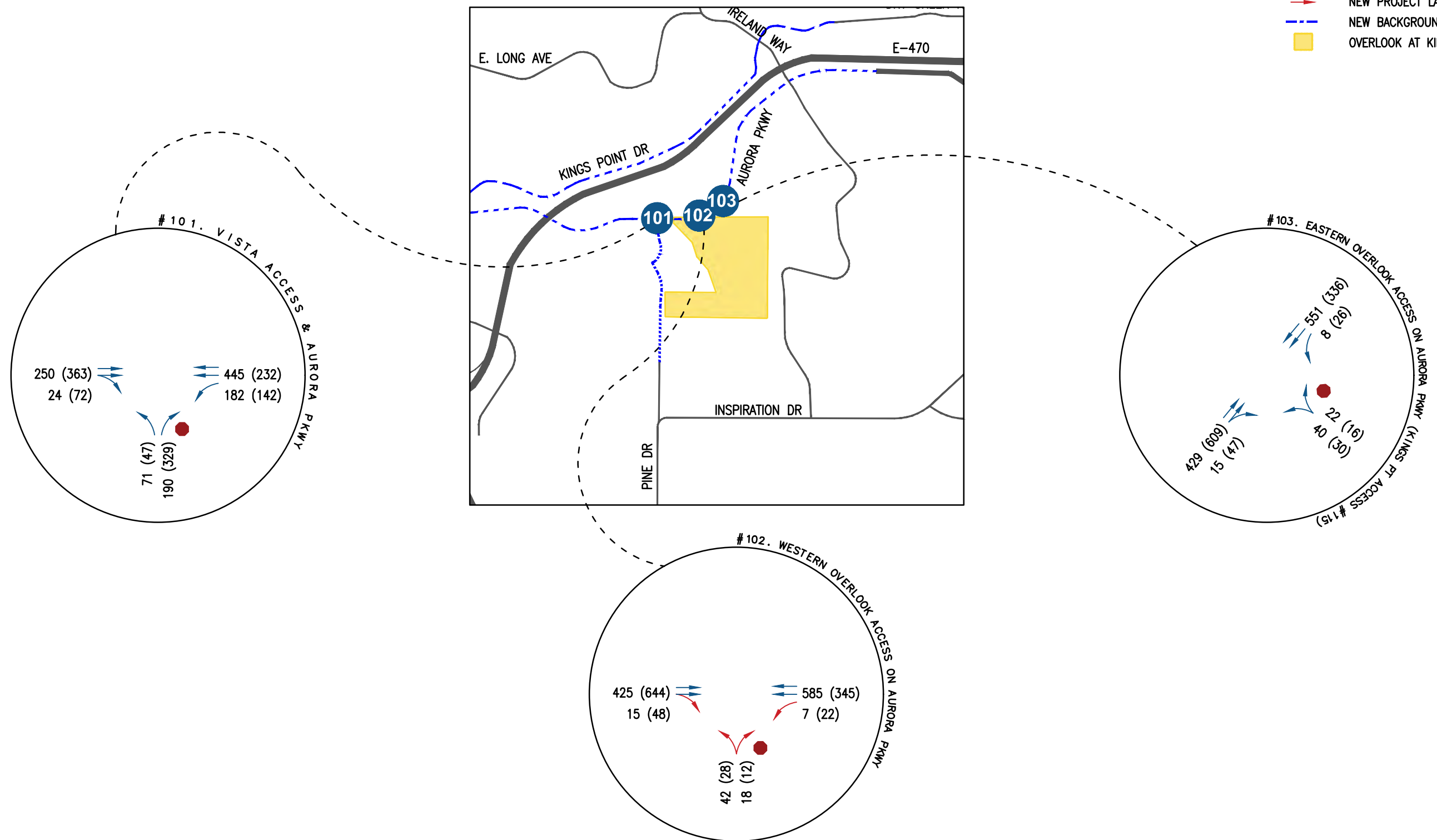
- XX (XX) AM (PM) PEAK HOUR TRAFFIC VOLUME
- EXISTING LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- - - NEW BACKGROUND ROADWAY
- THE VISTA AT KINGS POINT SITE



OVERLAND AT KINGS POINT TRAFFIC IMPACT STUDY
 YEAR 2027 BACKGROUND + PROJECT TRAFFIC VOLUMES - EXTERNAL INTERSECTIONS [WITH PINE DRIVE EXTENSTION]

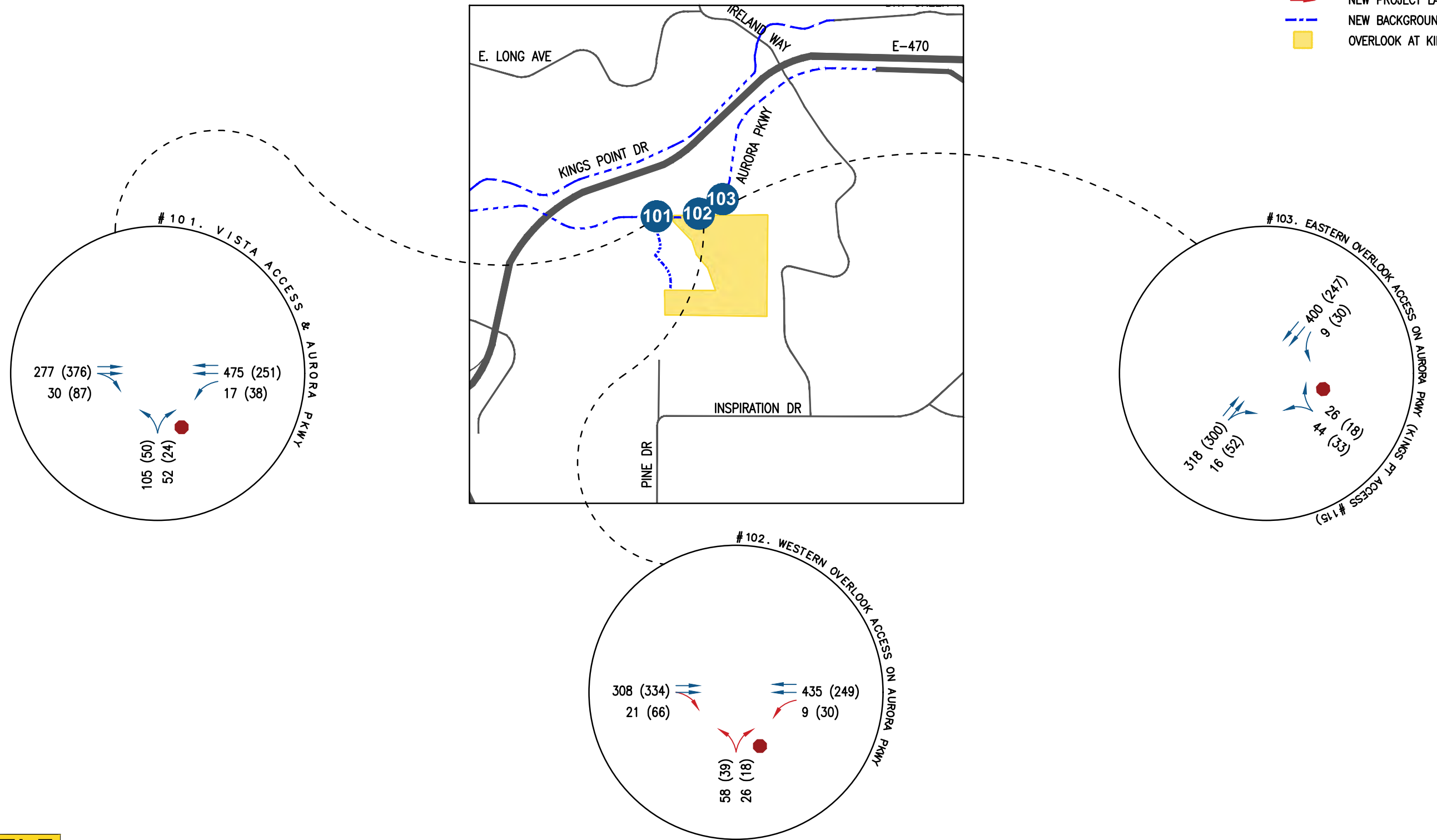
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- NEW BACKGROUND LANE CONFIGURATION
- NEW PROJECT LANE CONFIGURATION
- - - NEW BACKGROUND ROADWAY
- OVERLOOK AT KINGS POINT SITE



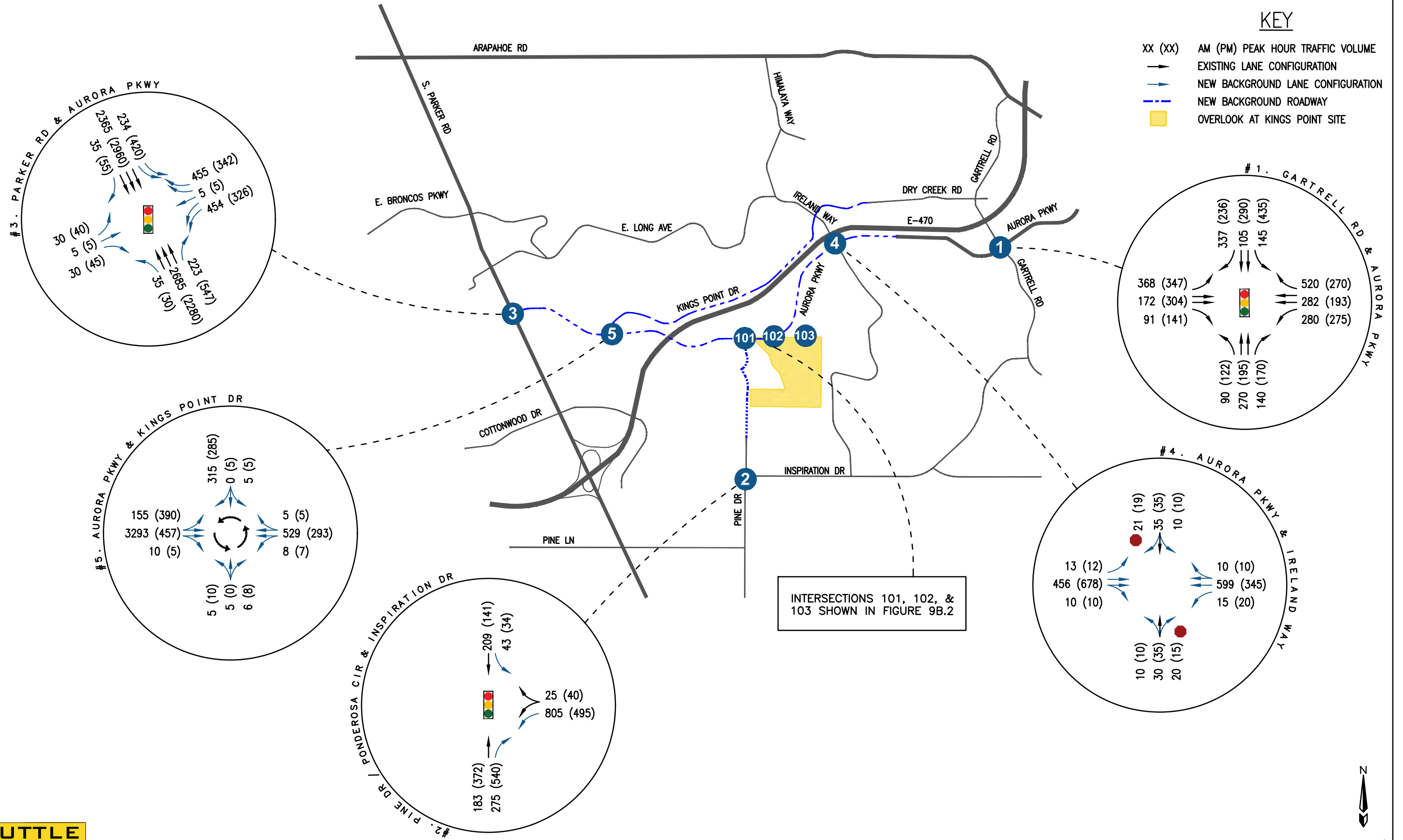
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- NEW BACKGROUND LANE CONFIGURATION
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- OVERLOOK AT KINGS POINT SITE



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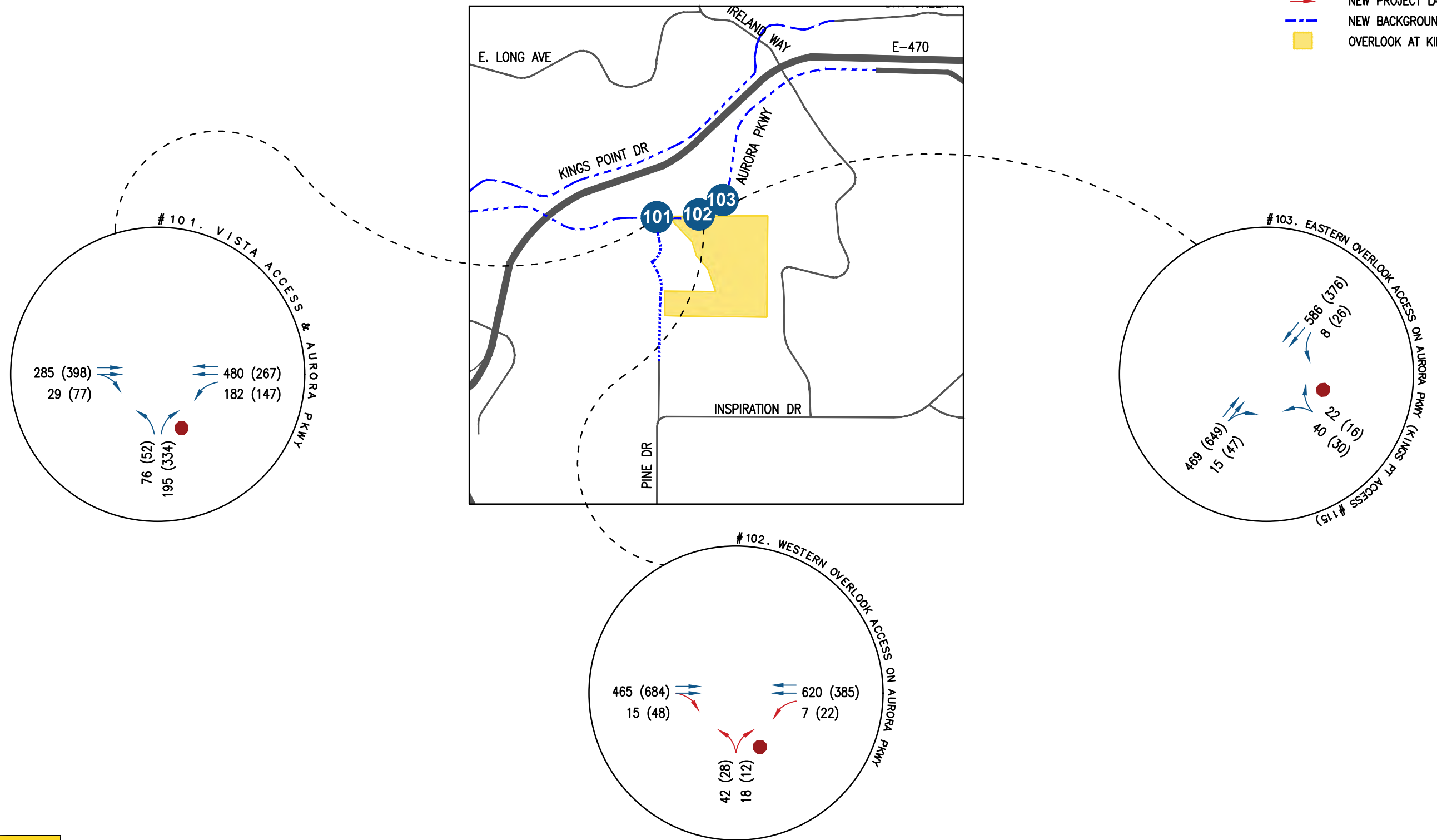
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- EXISTING LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- - - NEW BACKGROUND ROADWAY
- OVERLOOK AT KINGS POINT SITE



OVERLOOK AT KINGS POINT TRAFFIC IMPACT STUDY
YEAR 2040 BACKGROUND + PROJECT TRAFFIC VOLUMES - EXTERNAL INTERSECTIONS [WITH PINE DRIVE EXTENSTION]

KEY

- XX (XX) AM (PM) PEAK HOUR TRAFFIC VOLUME
- EXISTING LANE CONFIGURATION
- NEW BACKGROUND LANE CONFIGURATION
- NEW PROJECT LANE CONFIGURATION
- - - NEW BACKGROUND ROADWAY
- OVERLOOK AT KINGS POINT SITE



Appendix:

Level of Service Definitions

Existing Traffic Data

Intersection Capacity Worksheets

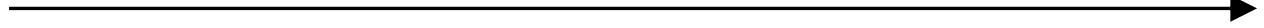
Level of Service Definitions

LEVEL OF SERVICE DEFINITIONS

In rating roadway and intersection operating conditions with existing or future traffic volumes, “Levels of Service” (LOS) A through F are used, with LOS A indicating very good operation and LOS F indicating poor operation. Levels of service at signalized and unsignalized intersections are closely associated with vehicle delays experienced in seconds per vehicle. More complete level of service definitions and delay data for signal and stop sign controlled intersections are contained in the following table for reference.

Level of Service Rating	Delay in seconds per vehicle (a)		Definition
	Signalized	Unsignalized	
A	0.0 to 10.0	0.0 to 10.0	Low vehicular traffic volumes; primarily free flow operations. Density is low and vehicles can freely maneuver within the traffic stream. Drivers are able to maintain their desired speeds with little or no delay.
B	10.1 to 20.0	10.1 to 15.0	Stable vehicular traffic volume flow with potential for some restriction of operating speeds due to traffic conditions. Vehicle maneuvering is only slightly restricted. The stopped delays are not bothersome and drivers are not subject to appreciable tension.
C	20.1 to 35.0	15.1 to 25.0	Stable traffic operations, however the ability for vehicles to maneuver is more restricted by the increase in traffic volumes. Relatively satisfactory operating speeds prevail, but adverse signal coordination or longer vehicle queues cause delays along the corridor.
D	35.1 to 55.0	25.1 to 35.0	Approaching unstable vehicular traffic flow where small increases in volume could cause substantial delays. Most drivers are restricted in ability to maneuver and selection of travel speeds due to congestion. Driver comfort and convenience are low, but tolerable.
E	55.1 to 80.0	35.1 to 50.0	Traffic operations characterized by significant approach delays and average travel speeds of one-half to one-third the free flow speed. Vehicular flow is unstable and there is potential for stoppages of brief duration. High signal density, extensive vehicle queuing, or corridor signal progression/timing are the typical causes of vehicle delays at signalized corridors.
F	> 80.0	> 50.0	Forced vehicular traffic flow and operations with high approach delays at critical intersections. Vehicle speeds are reduced substantially, and stoppages may occur for short or long periods of time because of downstream congestion.

(a) Delay ranges based on Highway Capacity Manual (6th Edition, 2016) criteria.



Existing Traffic Data





Aurora, CO
Vista at King's Point
AM Peak
Aurora Pkwy and Gartrell Rd

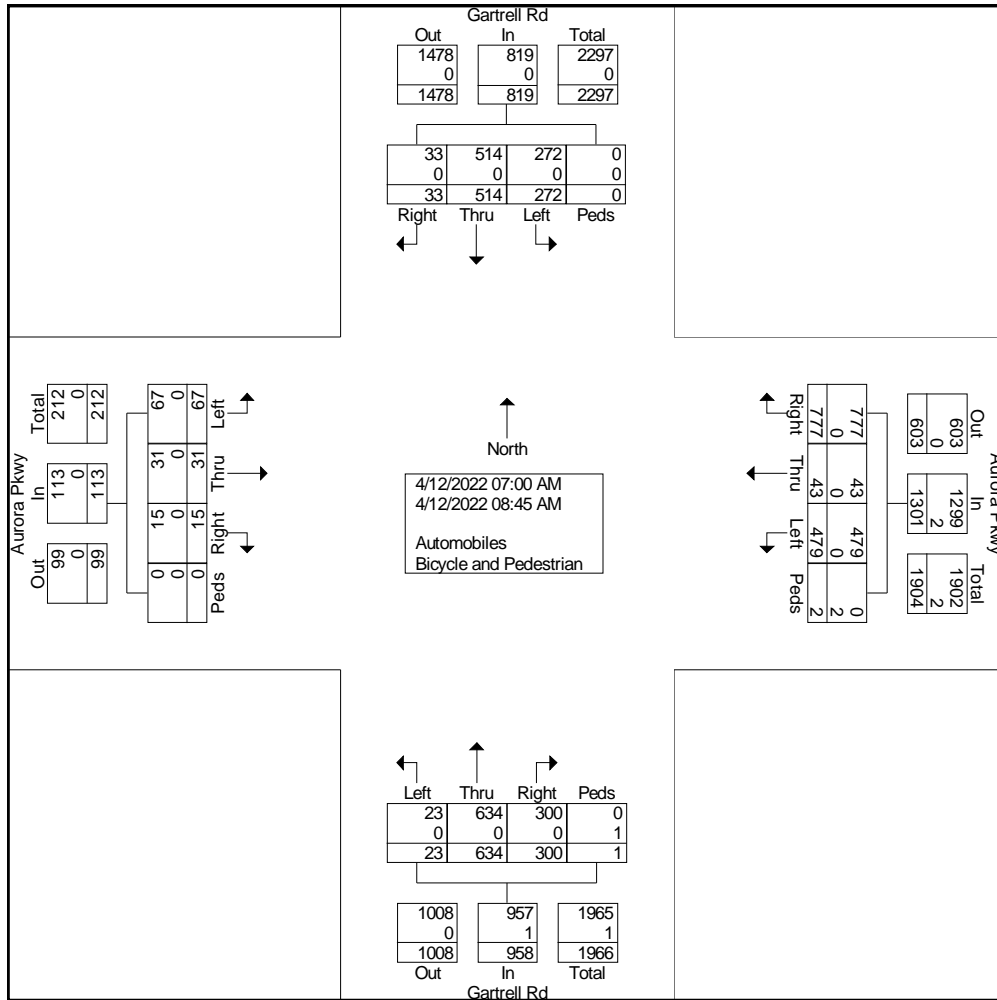
File Name : Aurora Pkwy and Gartrell AM
Site Code : 22018
Start Date : 4/12/2022
Page No : 1

Groups Printed- Automobiles - Bicycle and Pedestrian

	Aurora Pkwy Eastbound					Aurora Pkwy Westbound					Gartrell Rd Northbound					Gartrell Rd Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	5	0	2	0	7	51	2	85	0	138	0	80	28	0	108	20	51	3	0	74	327
07:15 AM	5	2	1	0	8	42	5	116	0	163	0	106	40	0	146	32	66	2	0	100	417
07:30 AM	12	4	0	0	16	65	4	132	1	202	2	81	33	0	116	34	74	5	0	113	447
07:45 AM	9	2	2	0	13	77	5	122	1	205	3	82	55	1	141	27	62	6	0	95	454
Total	31	8	5	0	44	235	16	455	2	708	5	349	156	1	511	113	253	16	0	382	1645
08:00 AM	9	5	2	0	16	76	4	110	0	190	3	75	44	0	122	41	54	3	0	98	426
08:15 AM	12	4	1	0	17	53	9	64	0	126	9	72	30	0	111	34	74	3	0	111	365
08:30 AM	7	6	3	0	16	66	7	76	0	149	4	82	30	0	116	56	62	4	0	122	403
08:45 AM	8	8	4	0	20	49	7	72	0	128	2	56	40	0	98	28	71	7	0	106	352
Total	36	23	10	0	69	244	27	322	0	593	18	285	144	0	447	159	261	17	0	437	1546
Grand Total	67	31	15	0	113	479	43	777	2	1301	23	634	300	1	958	272	514	33	0	819	3191
Apprch %	59.3	27.4	13.3	0		36.8	3.3	59.7	0.2		2.4	66.2	31.3	0.1		33.2	62.8	4	0		
Total %	2.1	1	0.5	0	3.5	15	1.3	24.3	0.1	40.8	0.7	19.9	9.4	0	30	8.5	16.1	1	0	25.7	
Automobiles	67	31	15	0	113	479	43	777	0	1299	23	634	300	0	957	272	514	33	0	819	3188
% Automobiles	100	100	100	0	100	100	100	100	0	99.8	100	100	100	0	99.9	100	100	100	0	100	99.9
Bicycle and Pedestrian	0	0	0	0	0	0	0	0	2	2	0	0	0	1	1	0	0	0	0	0	3
% Bicycle and Pedestrian	0	0	0	0	0	0	0	0	100	0.2	0	0	0	100	0.1	0	0	0	0	0	0.1

Aurora, CO
Vista at King's Point
AM Peak
Aurora Pkwy and Gartrell Rd

File Name : Aurora Pkwy and Gartrell AM
Site Code : 22018
Start Date : 4/12/2022
Page No : 2

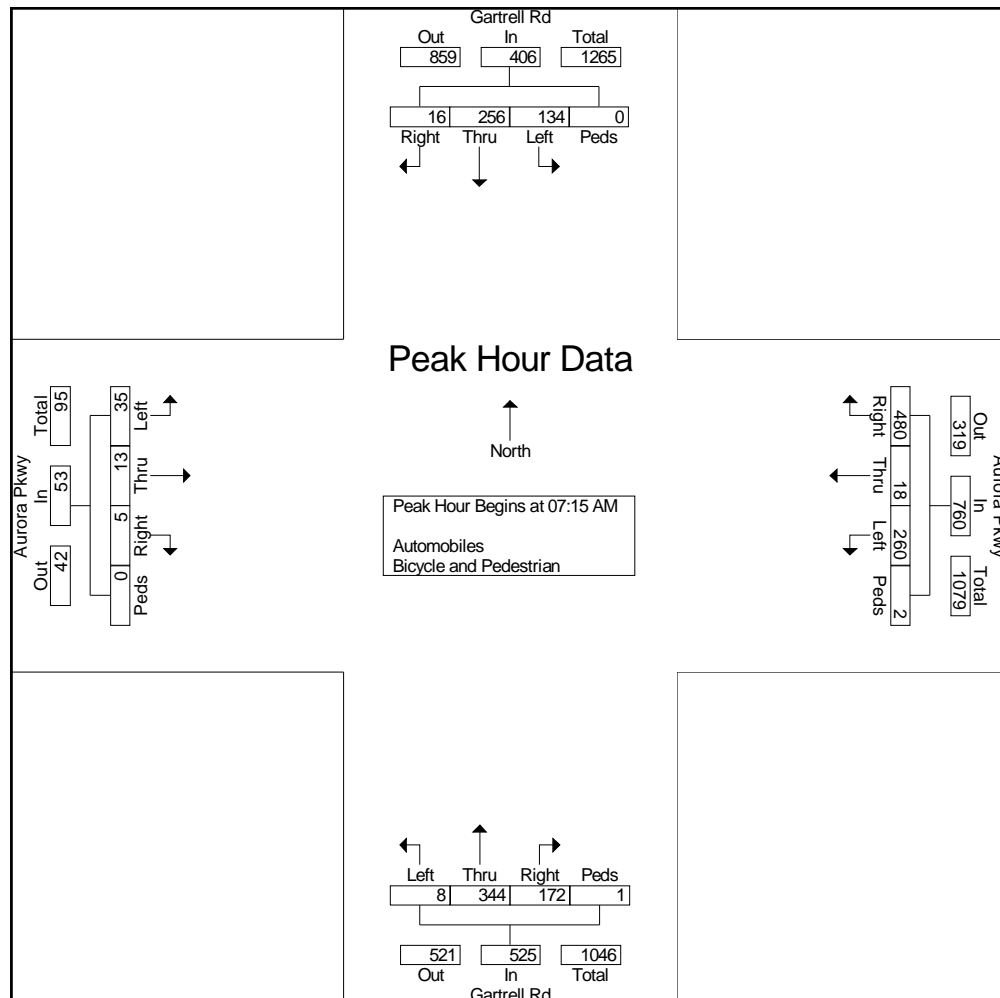




Aurora, CO
Vista at King's Point
AM Peak
Aurora Pkwy and Gartrell Rd

File Name : Aurora Pkwy and Gartrell AM
Site Code : 22018
Start Date : 4/12/2022
Page No : 3

	Aurora Pkwy Eastbound					Aurora Pkwy Westbound					Gartrell Rd Northbound					Gartrell Rd Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	5	2	1	0	8	42	5	116	0	163	0	106	40	0	146	32	66	2	0	100	417
07:30 AM	12	4	0	0	16	65	4	132	1	202	2	81	33	0	116	34	74	5	0	113	447
07:45 AM	9	2	2	0	13	77	5	122	1	205	3	82	55	1	141	27	62	6	0	95	454
08:00 AM	9	5	2	0	16	76	4	110	0	190	3	75	44	0	122	41	54	3	0	98	426
Total Volume	35	13	5	0	53	260	18	480	2	760	8	344	172	1	525	134	256	16	0	406	1744
% App. Total	66	24.5	9.4	0		34.2	2.4	63.2	0.3		1.5	65.5	32.8	0.2		33	63.1	3.9	0		
PHF	.729	.650	.625	.000	.828	.844	.900	.909	.500	.927	.667	.811	.782	.250	.899	.817	.865	.667	.000	.898	.960





Aurora, CO
Vista at King's Point
PM Peak
Aurora Pkwy and Gartrell Rd

File Name : Aurora Pkwy and Gartrell PM
Site Code : 22018
Start Date : 4/12/2022
Page No : 1

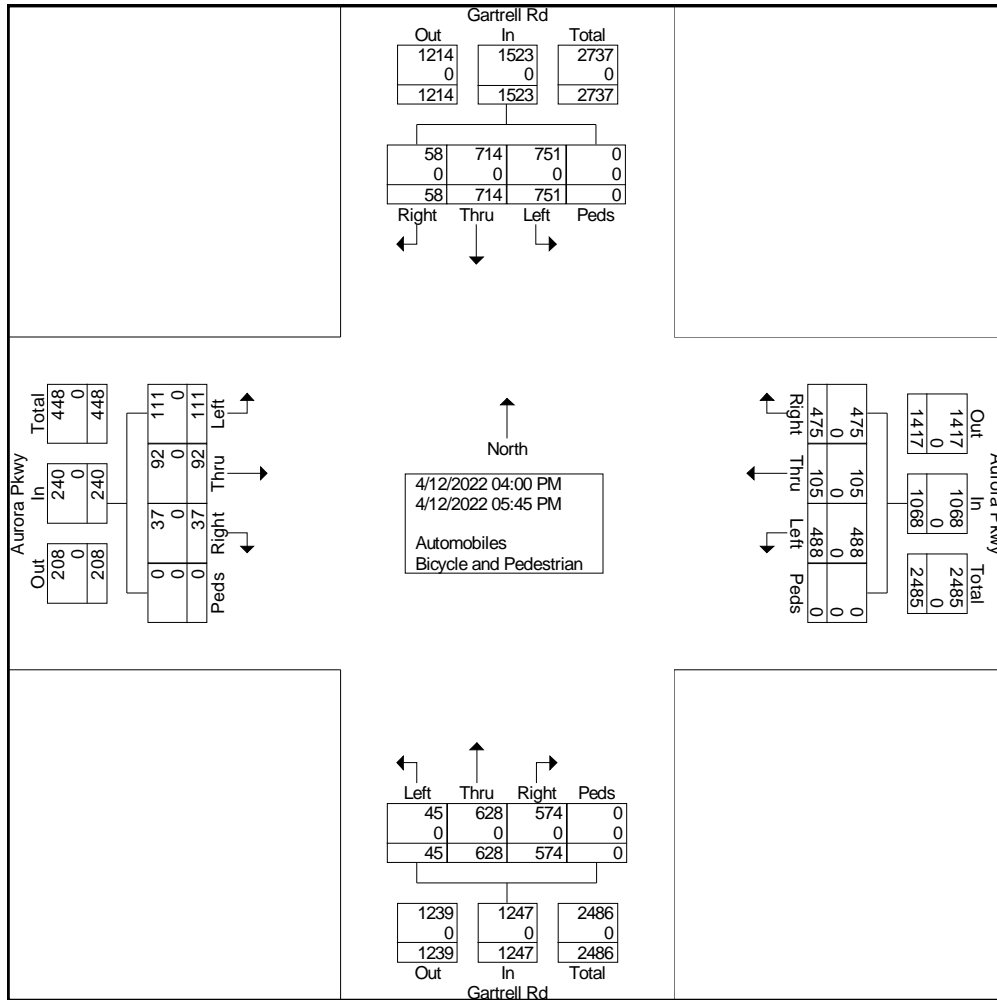
Groups Printed- Automobiles - Bicycle and Pedestrian

[illegible]



Aurora, CO
 Vista at King's Point
 PM Peak
 Aurora Pkwy and Gartrell Rd

File Name : Aurora Pkwy and Gartrell PM
 Site Code : 22018
 Start Date : 4/12/2022
 Page No : 2

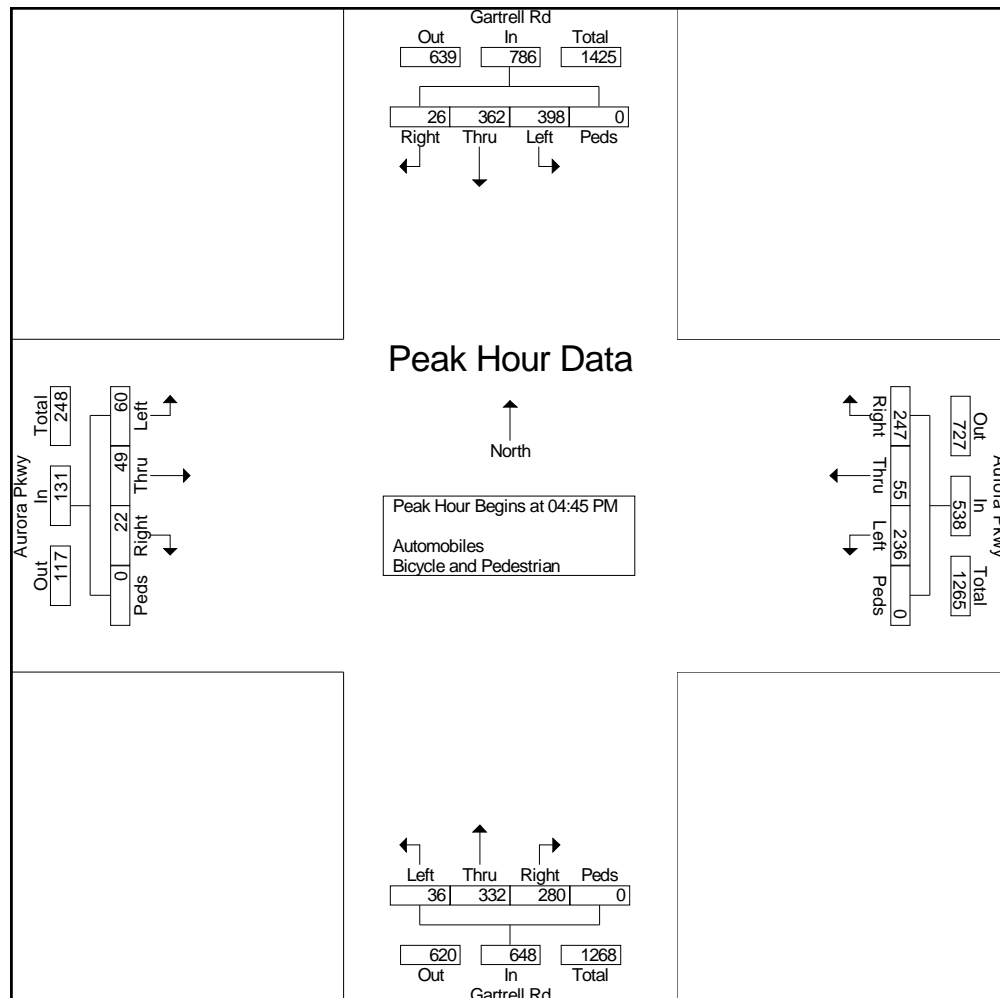




Aurora, CO
Vista at King's Point
PM Peak
Aurora Pkwy and Gartrell Rd

File Name : Aurora Pkwy and Gartrell PM
Site Code : 22018
Start Date : 4/12/2022
Page No : 3

	Aurora Pkwy Eastbound					Aurora Pkwy Westbound					Gartrell Rd Northbound					Gartrell Rd Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	13	13	6	0	32	61	12	71	0	144	6	74	73	0	153	86	81	8	0	175	504
05:00 PM	7	14	6	0	27	54	16	65	0	135	10	89	58	0	157	105	88	7	0	200	519
05:15 PM	20	13	3	0	36	48	14	53	0	115	14	94	67	0	175	112	89	7	0	208	534
05:30 PM	20	9	7	0	36	73	13	58	0	144	6	75	82	0	163	95	104	4	0	203	546
Total Volume	60	49	22	0	131	236	55	247	0	538	36	332	280	0	648	398	362	26	0	786	2103
% App. Total	45.8	37.4	16.8	0		43.9	10.2	45.9	0		5.6	51.2	43.2	0		50.6	46.1	3.3	0		
PHF	.750	.875	.786	.000	.910	.808	.859	.870	.000	.934	.643	.883	.854	.000	.926	.888	.870	.813	.000	.945	.963



Daily Vehicle Volume Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 9

Location: 1. Ireland Way south of E-470 overpass

Comments: Aurora, CO

	Northbound Volume	Southbound Volume	Total Volume
00:00 - 00:59	0	0	0
01:00 - 01:59	0	0	0
02:00 - 02:59	1	0	1
03:00 - 03:59	0	1	1
04:00 - 04:59	1	0	1
05:00 - 05:59	0	0	0
06:00 - 06:59	12	4	16
07:00 - 07:59	32	13	45
08:00 - 08:59	23	15	38
09:00 - 09:59	10	11	21
10:00 - 10:59	13	13	26
11:00 - 11:59	14	15	29
12:00 - 12:59	15	8	23
13:00 - 13:59	18	6	24
14:00 - 14:59	15	17	32
15:00 - 15:59	20	20	40
16:00 - 16:59	15	19	34
17:00 - 17:59	12	30	42
18:00 - 18:59	15	15	30
19:00 - 19:59	6	3	9
20:00 - 20:59	12	16	28
21:00 - 21:59	5	9	14
22:00 - 22:59	1	3	4
23:00 - 23:59	1	1	2
Totals	241	219	460
AM Peak Time	07:06 - 08:05	07:52 - 08:51	07:09 - 08:08
AM Peak Volume	35	17	50
PM Peak Time	15:24 - 16:23	17:00 - 17:59	15:24 - 16:23
PM Peak Volume	25	30	47

Daily Northbound Classes Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 9

Location: 1. Ireland Way south of E-470 overpass

Comments: Aurora, CO

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 - 00:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 - 01:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 - 02:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00 - 03:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 - 04:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:00 - 05:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 - 06:59	0	8	2	0	2	0	0	0	0	0	0	0	0	12
07:00 - 07:59	0	23	6	1	2	0	0	0	0	0	0	0	0	32
08:00 - 08:59	0	15	5	1	2	0	0	0	0	0	0	0	0	23
09:00 - 09:59	0	7	1	0	2	0	0	0	0	0	0	0	0	10
10:00 - 10:59	0	10	0	0	3	0	0	0	0	0	0	0	0	13
11:00 - 11:59	0	9	3	0	1	0	0	1	0	0	0	0	0	14
12:00 - 12:59	1	8	4	1	1	0	0	0	0	0	0	0	0	15
13:00 - 13:59	0	16	0	0	1	1	0	0	0	0	0	0	0	18
14:00 - 14:59	0	14	0	0	1	0	0	0	0	0	0	0	0	15
15:00 - 15:59	1	9	5	1	4	0	0	0	0	0	0	0	0	20
16:00 - 16:59	0	11	2	0	2	0	0	0	0	0	0	0	0	15
17:00 - 17:59	0	11	0	0	1	0	0	0	0	0	0	0	0	12
18:00 - 18:59	0	12	1	0	2	0	0	0	0	0	0	0	0	15
19:00 - 19:59	0	3	2	0	1	0	0	0	0	0	0	0	0	6
20:00 - 20:59	0	11	1	0	0	0	0	0	0	0	0	0	0	12
21:00 - 21:59	0	5	0	0	0	0	0	0	0	0	0	0	0	5
22:00 - 22:59	0	0	0	0	1	0	0	0	0	0	0	0	0	1
23:00 - 23:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Totals	2	175	32	4	26	1	0	1	0	0	0	0	0	241
Percent of Total	0.8	72.6	13.3	1.7	10.8	0.4	0.0	0.4	0.0	0.0	0.0	0.0	0.0	100
Percent of AM	0.0	69.8	16.0	1.9	11.3	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	100
Percent of PM	1.5	74.8	11.1	1.5	10.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100

Truck Summary:

Total Trucks: 32

% Trucks: 13.3

AM % Trucks: 14.2

PM % Trucks: 12.6

Classification Scheme: FHWA (ID: 1)

#1 Motorcycles - 2 Axles
#2 Passenger Cars - 2 Axles
#3 Pickup Trucks, Vans - 2 Axles
#4 Buses
#5 Single Unit - 2 Axles, 6 Tires

#6 Single Unit Truck - 3 Axles
#7 Single Unit - 4 Axles
#8 Single Unit - 4 Axles or Less
#9 Double Unit - 5 Axles
#10 Double Unit - 6 Axles or More

#11 Multi-Unit - 5 Axles or Less
#12 Multi-Unit - 6 Axles
#13 Multi-Unit - 7 Axles or More

Daily Southbound Classes Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 9

Location: 1. Ireland Way south of E-470 overpass

Comments: Aurora, CO

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 - 00:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 - 01:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 - 02:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 - 03:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00 - 04:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 - 05:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 - 06:59	0	3	1	0	0	0	0	0	0	0	0	0	0	4
07:00 - 07:59	0	8	2	1	2	0	0	0	0	0	0	0	0	13
08:00 - 08:59	0	9	2	1	2	0	0	1	0	0	0	0	0	15
09:00 - 09:59	0	9	2	0	0	0	0	0	0	0	0	0	0	11
10:00 - 10:59	0	12	1	0	0	0	0	0	0	0	0	0	0	13
11:00 - 11:59	0	12	1	0	2	0	0	0	0	0	0	0	0	15
12:00 - 12:59	0	5	2	0	1	0	0	0	0	0	0	0	0	8
13:00 - 13:59	0	5	1	0	0	0	0	0	0	0	0	0	0	6
14:00 - 14:59	0	14	1	1	1	0	0	0	0	0	0	0	0	17
15:00 - 15:59	0	13	5	0	2	0	0	0	0	0	0	0	0	20
16:00 - 16:59	0	16	3	0	0	0	0	0	0	0	0	0	0	19
17:00 - 17:59	0	25	3	0	2	0	0	0	0	0	0	0	0	30
18:00 - 18:59	0	14	1	0	0	0	0	0	0	0	0	0	0	15
19:00 - 19:59	1	2	0	0	0	0	0	0	0	0	0	0	0	3
20:00 - 20:59	6	10	0	0	0	0	0	0	0	0	0	0	0	16
21:00 - 21:59	1	8	0	0	0	0	0	0	0	0	0	0	0	9
22:00 - 22:59	2	1	0	0	0	0	0	0	0	0	0	0	0	3
23:00 - 23:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Totals	10	168	25	3	12	0	0	1	0	0	0	0	0	219
Percent of Total	4.6	76.7	11.4	1.4	5.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	100
Percent of AM	0.0	75.0	12.5	2.8	8.3	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	100
Percent of PM	6.8	77.6	10.9	0.7	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100

Truck Summary:

Total Trucks: 16

% Trucks: 7.3

AM % Trucks: 12.5

PM % Trucks: 4.8

Classification Scheme: FHWA (ID: 1)

#1 Motorcycles - 2 Axles
#2 Passenger Cars - 2 Axles
#3 Pickup Trucks, Vans - 2 Axles
#4 Buses
#5 Single Unit - 2 Axles, 6 Tires

#6 Single Unit Truck - 3 Axles
#7 Single Unit - 4 Axles
#8 Single Unit - 4 Axles or Less
#9 Double Unit - 5 Axles
#10 Double Unit - 6 Axles or More

#11 Multi-Unit - 5 Axles or Less
#12 Multi-Unit - 6 Axles
#13 Multi-Unit - 7 Axles or More

Daily Total Classes Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 9

Location: 1. Ireland Way south of E-470 overpass

Comments: Aurora, CO

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 - 00:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 - 01:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 - 02:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00 - 03:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00 - 04:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:00 - 05:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 - 06:59	0	11	3	0	2	0	0	0	0	0	0	0	0	16
07:00 - 07:59	0	31	8	2	4	0	0	0	0	0	0	0	0	45
08:00 - 08:59	0	24	7	2	4	0	0	1	0	0	0	0	0	38
09:00 - 09:59	0	16	3	0	2	0	0	0	0	0	0	0	0	21
10:00 - 10:59	0	22	1	0	3	0	0	0	0	0	0	0	0	26
11:00 - 11:59	0	21	4	0	3	0	0	1	0	0	0	0	0	29
12:00 - 12:59	1	13	6	1	2	0	0	0	0	0	0	0	0	23
13:00 - 13:59	0	21	1	0	1	1	0	0	0	0	0	0	0	24
14:00 - 14:59	0	28	1	1	2	0	0	0	0	0	0	0	0	32
15:00 - 15:59	1	22	10	1	6	0	0	0	0	0	0	0	0	40
16:00 - 16:59	0	27	5	0	2	0	0	0	0	0	0	0	0	34
17:00 - 17:59	0	36	3	0	3	0	0	0	0	0	0	0	0	42
18:00 - 18:59	0	26	2	0	2	0	0	0	0	0	0	0	0	30
19:00 - 19:59	1	5	2	0	1	0	0	0	0	0	0	0	0	9
20:00 - 20:59	6	21	1	0	0	0	0	0	0	0	0	0	0	28
21:00 - 21:59	1	13	0	0	0	0	0	0	0	0	0	0	0	14
22:00 - 22:59	2	1	0	0	1	0	0	0	0	0	0	0	0	4
23:00 - 23:59	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Totals	12	343	57	7	38	1	0	2	0	0	0	0	0	460
Percent of Total	2.6	74.6	12.4	1.5	8.3	0.2	0.0	0.4	0.0	0.0	0.0	0.0	0.0	100
Percent of AM	0.0	71.9	14.6	2.2	10.1	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	100
Percent of PM	4.3	76.2	11.0	1.1	7.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100

Truck Summary:

Total Trucks: 48

% Trucks: 10.4

AM % Trucks: 13.5

PM % Trucks: 8.5

Classification Scheme: FHWA (ID: 1)

#1 Motorcycles - 2 Axles
#2 Passenger Cars - 2 Axles
#3 Pickup Trucks, Vans - 2 Axles
#4 Buses
#5 Single Unit - 2 Axles, 6 Tires

#6 Single Unit Truck - 3 Axles
#7 Single Unit - 4 Axles
#8 Single Unit - 4 Axles or Less
#9 Double Unit - 5 Axles
#10 Double Unit - 6 Axles or More

#11 Multi-Unit - 5 Axles or Less
#12 Multi-Unit - 6 Axles
#13 Multi-Unit - 7 Axles or More

Daily Northbound Speeds (MPH)

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 9

Location: 1. Ireland Way south of E-470 overpass

Posted Speed: 30

Comments: Aurora, CO

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 - 01:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 - 02:59	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
03:00 - 03:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 - 04:59	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
05:00 - 05:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 - 06:59	0	0	0	0	2	3	4	3	0	0	0	0	0	0	0	12
07:00 - 07:59	0	0	0	1	1	18	5	5	2	0	0	0	0	0	0	32
08:00 - 08:59	0	0	0	1	3	8	6	3	2	0	0	0	0	0	0	23
09:00 - 09:59	0	0	0	0	2	3	3	1	1	0	0	0	0	0	0	10
10:00 - 10:59	1	0	0	1	5	4	2	0	0	0	0	0	0	0	0	13
11:00 - 11:59	0	0	0	0	5	5	1	2	1	0	0	0	0	0	0	14
12:00 - 12:59	0	0	2	3	3	2	3	1	1	0	0	0	0	0	0	15
13:00 - 13:59	0	0	0	0	9	4	4	0	0	1	0	0	0	0	0	18
14:00 - 14:59	0	0	0	0	2	7	3	3	0	0	0	0	0	0	0	15
15:00 - 15:59	1	0	0	0	4	8	4	2	1	0	0	0	0	0	0	20
16:00 - 16:59	0	0	0	0	3	7	5	0	0	0	0	0	0	0	0	15
17:00 - 17:59	0	0	0	0	3	3	2	3	1	0	0	0	0	0	0	12
18:00 - 18:59	0	1	1	1	1	6	2	3	0	0	0	0	0	0	0	15
19:00 - 19:59	0	0	1	0	3	2	0	0	0	0	0	0	0	0	0	6
20:00 - 20:59	0	0	1	2	4	4	0	0	1	0	0	0	0	0	0	12
21:00 - 21:59	0	0	0	0	2	1	2	0	0	0	0	0	0	0	0	5
22:00 - 22:59	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
23:00 - 23:59	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Totals	2	1	5	9	52	86	48	27	10	1	0	0	0	0	0	241
Percent of Total	0.8	0.4	2.1	3.7	21.6	35.7	19.9	11.2	4.1	0.4	0.0	0.0	0.0	0.0	0.0	100
Percent of AM	0.9	0.0	0.0	2.8	17.0	39.6	20.8	13.2	5.7	0.0	0.0	0.0	0.0	0.0	0.0	100
Percent of PM	0.7	0.7	3.7	4.4	25.2	32.6	19.3	9.6	3.0	0.7	0.0	0.0	0.0	0.0	0.0	100

Standard Deviation:	7.1 MPH	Ten Mile Pace:	30 to 39 MPH	85th Percentile:	45.3 MPH
Mean Speed:	38.2 MPH	Percent in Ten Mile Pace:	57.3%	15th Percentile:	31.8 MPH
Median Speed:	38.0 MPH			90th Percentile:	47.5 MPH
Modal Speed:	37.5 MPH			95th Percentile:	49.7 MPH

Daily Southbound Speeds (MPH)

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 9

Location: 1. Ireland Way south of E-470 overpass

Posted Speed: 30

Comments: Aurora, CO

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 - 01:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 - 02:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 - 03:59	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
04:00 - 04:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 - 05:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 - 06:59	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	4
07:00 - 07:59	0	0	0	0	2	9	1	1	0	0	0	0	0	0	0	13
08:00 - 08:59	0	0	0	2	4	6	3	0	0	0	0	0	0	0	0	15
09:00 - 09:59	0	0	0	0	4	3	4	0	0	0	0	0	0	0	0	11
10:00 - 10:59	0	0	0	1	6	3	2	1	0	0	0	0	0	0	0	13
11:00 - 11:59	0	0	1	2	5	4	1	0	2	0	0	0	0	0	0	15
12:00 - 12:59	0	0	0	2	2	4	0	0	0	0	0	0	0	0	0	8
13:00 - 13:59	0	0	1	0	2	1	1	1	0	0	0	0	0	0	0	6
14:00 - 14:59	0	0	0	2	4	6	3	2	0	0	0	0	0	0	0	17
15:00 - 15:59	0	0	0	1	10	3	5	1	0	0	0	0	0	0	0	20
16:00 - 16:59	0	0	0	3	5	6	5	0	0	0	0	0	0	0	0	19
17:00 - 17:59	0	0	1	3	12	5	9	0	0	0	0	0	0	0	0	30
18:00 - 18:59	0	1	0	1	4	7	2	0	0	0	0	0	0	0	0	15
19:00 - 19:59	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	3
20:00 - 20:59	0	3	3	3	6	1	0	0	0	0	0	0	0	0	0	16
21:00 - 21:59	0	1	0	1	1	3	3	0	0	0	0	0	0	0	0	9
22:00 - 22:59	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	3
23:00 - 23:59	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Totals	0	6	8	21	71	64	41	6	2	0	0	0	0	0	0	219
Percent of Total	0.0	2.7	3.7	9.6	32.4	29.2	18.7	2.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	100
Percent of AM	0.0	0.0	1.4	6.9	33.3	37.5	15.3	2.8	2.8	0.0	0.0	0.0	0.0	0.0	0.0	100
Percent of PM	0.0	4.1	4.8	10.9	32.0	25.2	20.4	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100

Standard Deviation:	6.6 MPH	Ten Mile Pace:	30 to 39 MPH	85th Percentile:	41.9 MPH
Mean Speed:	35.2 MPH	Percent in Ten Mile Pace:	61.6%	15th Percentile:	29.4 MPH
Median Speed:	35.2 MPH			90th Percentile:	43.2 MPH
Modal Speed:	32.5 MPH			95th Percentile:	44.6 MPH

Daily Total Speeds (MPH)

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 9

Location: 1. Ireland Way south of E-470 overpass

Posted Speed: 30

Comments: Aurora, CO

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 - 01:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00 - 02:59	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
03:00 - 03:59	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
04:00 - 04:59	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
05:00 - 05:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 - 06:59	0	0	0	0	5	4	4	3	0	0	0	0	0	0	0	16
07:00 - 07:59	0	0	0	1	3	27	6	6	2	0	0	0	0	0	0	45
08:00 - 08:59	0	0	0	3	7	14	9	3	2	0	0	0	0	0	0	38
09:00 - 09:59	0	0	0	0	6	6	7	1	1	0	0	0	0	0	0	21
10:00 - 10:59	1	0	0	2	11	7	4	1	0	0	0	0	0	0	0	26
11:00 - 11:59	0	0	1	2	10	9	2	2	3	0	0	0	0	0	0	29
12:00 - 12:59	0	0	2	5	5	6	3	1	1	0	0	0	0	0	0	23
13:00 - 13:59	0	0	1	0	11	5	5	1	0	1	0	0	0	0	0	24
14:00 - 14:59	0	0	0	2	6	13	6	5	0	0	0	0	0	0	0	32
15:00 - 15:59	1	0	0	1	14	11	9	3	1	0	0	0	0	0	0	40
16:00 - 16:59	0	0	0	3	8	13	10	0	0	0	0	0	0	0	0	34
17:00 - 17:59	0	0	1	3	15	8	11	3	1	0	0	0	0	0	0	42
18:00 - 18:59	0	2	1	2	5	13	4	3	0	0	0	0	0	0	0	30
19:00 - 19:59	0	0	2	0	4	2	1	0	0	0	0	0	0	0	0	9
20:00 - 20:59	0	3	4	5	10	5	0	0	1	0	0	0	0	0	0	28
21:00 - 21:59	0	1	0	1	3	4	5	0	0	0	0	0	0	0	0	14
22:00 - 22:59	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	4
23:00 - 23:59	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
Totals	2	7	13	30	123	150	89	33	12	1	0	0	0	0	0	460
Percent of Total	0.4	1.5	2.8	6.5	26.7	32.6	19.3	7.2	2.6	0.2	0.0	0.0	0.0	0.0	0.0	100
Percent of AM	0.6	0.0	0.6	4.5	23.6	38.8	18.5	9.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	100
Percent of PM	0.4	2.5	4.3	7.8	28.7	28.7	19.9	6.0	1.4	0.4	0.0	0.0	0.0	0.0	0.0	100

Standard Deviation:	7.0 MPH	Ten Mile Pace:	30 to 39 MPH	85th Percentile:	43.7 MPH
Mean Speed:	36.8 MPH	Percent in Ten Mile Pace:	59.3%	15th Percentile:	30.7 MPH
Median Speed:	36.8 MPH			90th Percentile:	44.9 MPH
Modal Speed:	37.5 MPH			95th Percentile:	48.4 MPH

Daily Vehicle Volume Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 41

Location: 2A. Aurora Pkwy west of Gartrell Rd Eastbound

Comments: Aurora, CO

	Eastbound Volume
00:00 - 00:59	1
01:00 - 01:59	1
02:00 - 02:59	1
03:00 - 03:59	1
04:00 - 04:59	2
05:00 - 05:59	3
06:00 - 06:59	16
07:00 - 07:59	39
08:00 - 08:59	57
09:00 - 09:59	58
10:00 - 10:59	87
11:00 - 11:59	85
12:00 - 12:59	63
13:00 - 13:59	71
14:00 - 14:59	47
15:00 - 15:59	47
16:00 - 16:59	64
17:00 - 17:59	73
18:00 - 18:59	71
19:00 - 19:59	28
20:00 - 20:59	20
21:00 - 21:59	7
22:00 - 22:59	6
23:00 - 23:59	1
Totals	849
AM Peak Time	09:47 - 10:46
AM Peak Volume	90
PM Peak Time	17:11 - 18:10
PM Peak Volume	84

Daily Eastbound Classes Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 41

Location: 2A. Aurora Pkwy west of Gartrell Rd Eastbound

Comments: Aurora, CO

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 - 00:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
01:00 - 01:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00 - 02:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00 - 03:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00 - 04:59	0	2	0	0	0	0	0	0	0	0	0	0	0	2
05:00 - 05:59	0	2	1	0	0	0	0	0	0	0	0	0	0	3
06:00 - 06:59	0	10	5	0	1	0	0	0	0	0	0	0	0	16
07:00 - 07:59	0	29	6	0	4	0	0	0	0	0	0	0	0	39
08:00 - 08:59	0	34	10	1	11	0	0	0	1	0	0	0	0	57
09:00 - 09:59	0	42	9	0	7	0	0	0	0	0	0	0	0	58
10:00 - 10:59	0	61	14	0	11	1	0	0	0	0	0	0	0	87
11:00 - 11:59	0	55	19	0	9	2	0	0	0	0	0	0	0	85
12:00 - 12:59	0	39	8	1	11	3	0	0	1	0	0	0	0	63
13:00 - 13:59	0	49	13	1	7	1	0	0	0	0	0	0	0	71
14:00 - 14:59	0	31	10	0	6	0	0	0	0	0	0	0	0	47
15:00 - 15:59	0	33	11	1	2	0	0	0	0	0	0	0	0	47
16:00 - 16:59	0	41	18	1	4	0	0	0	0	0	0	0	0	64
17:00 - 17:59	1	50	11	1	10	0	0	0	0	0	0	0	0	73
18:00 - 18:59	0	44	21	0	6	0	0	0	0	0	0	0	0	71
19:00 - 19:59	0	14	10	0	4	0	0	0	0	0	0	0	0	28
20:00 - 20:59	0	16	4	0	0	0	0	0	0	0	0	0	0	20
21:00 - 21:59	0	5	2	0	0	0	0	0	0	0	0	0	0	7
22:00 - 22:59	0	5	1	0	0	0	0	0	0	0	0	0	0	6
23:00 - 23:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Totals	1	567	173	6	93	7	0	0	2	0	0	0	0	849
Percent of Total	0.1	66.8	20.4	0.7	11.0	0.8	0.0	0.0	0.2	0.0	0.0	0.0	0.0	100
Percent of AM	0.0	68.1	18.2	0.3	12.3	0.9	0.0	0.0	0.3	0.0	0.0	0.0	0.0	100
Percent of PM	0.2	65.9	21.9	1.0	10.0	0.8	0.0	0.0	0.2	0.0	0.0	0.0	0.0	100

Truck Summary:

Total Trucks: 108

% Trucks: 12.7

AM % Trucks: 13.7

PM % Trucks: 12.0

Classification Scheme: FHWA (ID: 1)

#1 Motorcycles - 2 Axles
#2 Passenger Cars - 2 Axles
#3 Pickup Trucks, Vans - 2 Axles
#4 Buses
#5 Single Unit - 2 Axles, 6 Tires

#6 Single Unit Truck - 3 Axles
#7 Single Unit - 4 Axles
#8 Single Unit - 4 Axles or Less
#9 Double Unit - 5 Axles
#10 Double Unit - 6 Axles or More

#11 Multi-Unit - 5 Axles or Less
#12 Multi-Unit - 6 Axles
#13 Multi-Unit - 7 Axles or More

Daily Eastbound Speeds (MPH)

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 41

Location: 2A. Aurora Pkwy west of Gartrell Rd Eastbound

Posted Speed: 35

Comments: Aurora, CO

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
01:00 - 01:59	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
02:00 - 02:59	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
03:00 - 03:59	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
04:00 - 04:59	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2
05:00 - 05:59	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	3
06:00 - 06:59	0	0	0	3	0	4	3	4	2	0	0	0	0	0	0	16
07:00 - 07:59	0	0	1	1	7	8	8	8	5	1	0	0	0	0	0	39
08:00 - 08:59	0	1	0	7	11	18	14	6	0	0	0	0	0	0	0	57
09:00 - 09:59	0	0	2	4	9	18	14	7	3	0	1	0	0	0	0	58
10:00 - 10:59	0	0	1	3	17	17	37	9	3	0	0	0	0	0	0	87
11:00 - 11:59	0	0	3	7	14	20	28	9	3	1	0	0	0	0	0	85
12:00 - 12:59	0	0	3	6	5	18	16	11	4	0	0	0	0	0	0	63
13:00 - 13:59	0	0	2	8	10	16	20	11	3	1	0	0	0	0	0	71
14:00 - 14:59	0	0	1	5	6	6	16	7	4	1	1	0	0	0	0	47
15:00 - 15:59	0	0	1	2	7	16	6	13	2	0	0	0	0	0	0	47
16:00 - 16:59	0	0	2	9	15	12	11	9	5	1	0	0	0	0	0	64
17:00 - 17:59	0	0	6	11	20	18	8	5	4	1	0	0	0	0	0	73
18:00 - 18:59	0	0	2	15	15	18	10	8	2	1	0	0	0	0	0	71
19:00 - 19:59	0	0	1	4	6	7	7	3	0	0	0	0	0	0	0	28
20:00 - 20:59	0	0	0	4	4	9	2	1	0	0	0	0	0	0	0	20
21:00 - 21:59	0	0	0	1	0	0	3	3	0	0	0	0	0	0	0	7
22:00 - 22:59	0	0	0	1	2	0	1	2	0	0	0	0	0	0	0	6
23:00 - 23:59	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Totals	0	1	25	91	149	208	207	117	40	8	3	0	0	0	0	849
Percent of Total	0.0	0.1	2.9	10.7	17.6	24.5	24.4	13.8	4.7	0.9	0.4	0.0	0.0	0.0	0.0	100
Percent of AM	0.0	0.3	2.0	7.1	16.8	25.1	30.5	12.3	4.6	0.9	0.6	0.0	0.0	0.0	0.0	100
Percent of PM	0.0	0.0	3.6	13.3	18.1	24.1	20.1	14.9	4.8	1.0	0.2	0.0	0.0	0.0	0.0	100

Standard Deviation:	7.7 MPH	Ten Mile Pace:	35 to 44 MPH	85th Percentile:	46.7 MPH
Mean Speed:	38.7 MPH	Percent in Ten Mile Pace:	48.9%	15th Percentile:	30.3 MPH
Median Speed:	38.8 MPH			90th Percentile:	48.5 MPH
Modal Speed:	37.5 MPH			95th Percentile:	51.0 MPH

Daily Vehicle Volume Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 42

Location: 2B. Aurora Pkwy west of Gartrell Rd Westbound

Comments: Aurora, CO

	Westbound Volume
00:00 - 00:59	2
01:00 - 01:59	1
02:00 - 02:59	0
03:00 - 03:59	0
04:00 - 04:59	1
05:00 - 05:59	5
06:00 - 06:59	3
07:00 - 07:59	26
08:00 - 08:59	41
09:00 - 09:59	42
10:00 - 10:59	55
11:00 - 11:59	62
12:00 - 12:59	50
13:00 - 13:59	66
14:00 - 14:59	66
15:00 - 15:59	64
16:00 - 16:59	62
17:00 - 17:59	64
18:00 - 18:59	50
19:00 - 19:59	32
20:00 - 20:59	22
21:00 - 21:59	12
22:00 - 22:59	4
23:00 - 23:59	4
Totals	734
AM Peak Time	11:00 - 11:59
AM Peak Volume	62
PM Peak Time	13:21 - 14:20
PM Peak Volume	76

Daily Westbound Classes Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 42

Location: 2B. Aurora Pkwy west of Gartrell Rd Westbound

Comments: Aurora, CO

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 - 00:59	0	1	0	0	1	0	0	0	0	0	0	0	0	2
01:00 - 01:59	0	0	1	0	0	0	0	0	0	0	0	0	0	1
02:00 - 02:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 - 03:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 - 04:59	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:00 - 05:59	0	4	1	0	0	0	0	0	0	0	0	0	0	5
06:00 - 06:59	0	2	1	0	0	0	0	0	0	0	0	0	0	3
07:00 - 07:59	0	14	5	1	6	0	0	0	0	0	0	0	0	26
08:00 - 08:59	0	20	8	0	13	0	0	0	0	0	0	0	0	41
09:00 - 09:59	0	27	7	0	7	1	0	0	0	0	0	0	0	42
10:00 - 10:59	0	34	7	0	11	3	0	0	0	0	0	0	0	55
11:00 - 11:59	0	40	12	1	9	0	0	0	0	0	0	0	0	62
12:00 - 12:59	0	34	9	2	4	1	0	0	0	0	0	0	0	50
13:00 - 13:59	0	41	19	0	6	0	0	0	0	0	0	0	0	66
14:00 - 14:59	0	46	16	0	4	0	0	0	0	0	0	0	0	66
15:00 - 15:59	0	44	13	1	6	0	0	0	0	0	0	0	0	64
16:00 - 16:59	0	42	16	2	2	0	0	0	0	0	0	0	0	62
17:00 - 17:59	0	33	20	0	11	0	0	0	0	0	0	0	0	64
18:00 - 18:59	0	32	14	1	3	0	0	0	0	0	0	0	0	50
19:00 - 19:59	0	22	7	0	3	0	0	0	0	0	0	0	0	32
20:00 - 20:59	0	17	4	0	1	0	0	0	0	0	0	0	0	22
21:00 - 21:59	0	8	3	0	1	0	0	0	0	0	0	0	0	12
22:00 - 22:59	0	4	0	0	0	0	0	0	0	0	0	0	0	4
23:00 - 23:59	0	2	2	0	0	0	0	0	0	0	0	0	0	4
Totals	0	468	165	8	88	5	0	0	0	0	0	0	0	734
Percent of Total	0.0	63.8	22.5	1.1	12.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
Percent of AM	0.0	60.1	17.6	0.8	19.7	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
Percent of PM	0.0	65.5	24.8	1.2	8.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100

Truck Summary:

Total Trucks: 101

% Trucks: 13.8

AM % Trucks: 22.3

PM % Trucks: 9.7

Classification Scheme: FHWA (ID: 1)

#1 Motorcycles - 2 Axles
#2 Passenger Cars - 2 Axles
#3 Pickup Trucks, Vans - 2 Axles
#4 Buses
#5 Single Unit - 2 Axles, 6 Tires

#6 Single Unit Truck - 3 Axles
#7 Single Unit - 4 Axles
#8 Single Unit - 4 Axles or Less
#9 Double Unit - 5 Axles
#10 Double Unit - 6 Axles or More

#11 Multi-Unit - 5 Axles or Less
#12 Multi-Unit - 6 Axles
#13 Multi-Unit - 7 Axles or More

Daily Westbound Speeds (MPH)

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 42

Location: 2B. Aurora Pkwy west of Gartrell Rd Westbound

Posted Speed: 35

Comments: Aurora, CO

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
01:00 - 01:59	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
02:00 - 02:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00 - 03:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 - 04:59	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
05:00 - 05:59	0	0	0	0	2	2	1	0	0	0	0	0	0	0	0	5
06:00 - 06:59	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	3
07:00 - 07:59	0	0	0	2	5	12	5	1	1	0	0	0	0	0	0	26
08:00 - 08:59	0	0	0	2	15	6	11	5	2	0	0	0	0	0	0	41
09:00 - 09:59	0	1	0	3	7	11	12	6	2	0	0	0	0	0	0	42
10:00 - 10:59	0	0	1	6	4	17	19	8	0	0	0	0	0	0	0	55
11:00 - 11:59	0	0	0	2	7	9	25	16	3	0	0	0	0	0	0	62
12:00 - 12:59	0	0	1	1	8	11	18	10	0	1	0	0	0	0	0	50
13:00 - 13:59	0	0	0	2	8	4	31	18	3	0	0	0	0	0	0	66
14:00 - 14:59	0	0	0	1	5	7	29	18	4	2	0	0	0	0	0	66
15:00 - 15:59	0	0	0	1	3	11	23	21	4	1	0	0	0	0	0	64
16:00 - 16:59	0	0	0	0	5	16	15	17	5	4	0	0	0	0	0	62
17:00 - 17:59	0	0	0	0	9	17	15	19	4	0	0	0	0	0	0	64
18:00 - 18:59	0	0	0	2	3	17	12	10	6	0	0	0	0	0	0	50
19:00 - 19:59	0	0	0	0	2	8	15	4	2	1	0	0	0	0	0	32
20:00 - 20:59	0	0	0	0	1	9	8	4	0	0	0	0	0	0	0	22
21:00 - 21:59	0	0	0	0	1	3	5	2	1	0	0	0	0	0	0	12
22:00 - 22:59	0	0	0	1	0	2	1	0	0	0	0	0	0	0	0	4
23:00 - 23:59	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	4
Totals	0	1	2	23	87	165	249	160	38	9	0	0	0	0	0	734
Percent of Total	0.0	0.1	0.3	3.1	11.9	22.5	33.9	21.8	5.2	1.2	0.0	0.0	0.0	0.0	0.0	100
Percent of AM	0.0	0.4	0.4	6.3	17.6	24.8	31.5	15.1	3.8	0.0	0.0	0.0	0.0	0.0	0.0	100
Percent of PM	0.0	0.0	0.2	1.6	9.1	21.4	35.1	25.0	5.8	1.8	0.0	0.0	0.0	0.0	0.0	100

Standard Deviation:	6.4 MPH	Ten Mile Pace:	35 to 44 MPH	85th Percentile:	48.0 MPH
Mean Speed:	41.4 MPH	Percent in Ten Mile Pace:	56.4%	15th Percentile:	34.8 MPH
Median Speed:	41.8 MPH			90th Percentile:	49.2 MPH
Modal Speed:	42.5 MPH			95th Percentile:	51.3 MPH

Daily Vehicle Volume Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 40

Location: 3. Pine Dr south of Inspiration Dr

Comments: Aurora, CO

	Southbound Volume	Northbound Volume	Total Volume
00:00 - 00:59	12	21	33
01:00 - 01:59	8	11	19
02:00 - 02:59	5	4	9
03:00 - 03:59	13	8	21
04:00 - 04:59	29	9	38
05:00 - 05:59	124	26	150
06:00 - 06:59	325	110	435
07:00 - 07:59	762	274	1036
08:00 - 08:59	633	343	976
09:00 - 09:59	451	298	749
10:00 - 10:59	445	376	821
11:00 - 11:59	430	419	849
12:00 - 12:59	373	453	826
13:00 - 13:59	401	451	852
14:00 - 14:59	441	478	919
15:00 - 15:59	499	579	1078
16:00 - 16:59	444	693	1137
17:00 - 17:59	457	679	1136
18:00 - 18:59	314	514	828
19:00 - 19:59	171	377	548
20:00 - 20:59	127	266	393
21:00 - 21:59	65	161	226
22:00 - 22:59	36	81	117
23:00 - 23:59	20	36	56
Totals	6585	6667	13252
AM Peak Time	07:11 - 08:10	10:48 - 11:47	07:15 - 08:14
AM Peak Volume	784	425	1121
PM Peak Time	15:23 - 16:22	16:01 - 17:00	15:25 - 16:24
PM Peak Volume	519	695	1188

Daily Southbound Classes Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 40

Location: 3. Pine Dr south of Inspiration Dr

Comments: Aurora, CO

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 - 00:59	0	8	2	0	2	0	0	0	0	0	0	0	0	12
01:00 - 01:59	0	6	1	0	1	0	0	0	0	0	0	0	0	8
02:00 - 02:59	0	4	1	0	0	0	0	0	0	0	0	0	0	5
03:00 - 03:59	0	8	2	0	3	0	0	0	0	0	0	0	0	13
04:00 - 04:59	0	23	5	0	1	0	0	0	0	0	0	0	0	29
05:00 - 05:59	0	100	11	0	13	0	0	0	0	0	0	0	0	124
06:00 - 06:59	0	260	30	1	34	0	0	0	0	0	0	0	0	325
07:00 - 07:59	1	614	73	3	67	1	0	1	2	0	0	0	0	762
08:00 - 08:59	2	499	52	5	73	1	0	1	0	0	0	0	0	633
09:00 - 09:59	0	360	47	0	39	2	0	3	0	0	0	0	0	451
10:00 - 10:59	2	341	60	3	31	3	0	4	1	0	0	0	0	445
11:00 - 11:59	3	337	40	0	46	3	0	1	0	0	0	0	0	430
12:00 - 12:59	2	290	44	0	29	4	0	1	3	0	0	0	0	373
13:00 - 13:59	1	305	52	4	32	5	0	0	2	0	0	0	0	401
14:00 - 14:59	1	355	45	1	38	1	0	0	0	0	0	0	0	441
15:00 - 15:59	2	375	62	3	51	4	0	1	1	0	0	0	0	499
16:00 - 16:59	0	342	51	2	47	2	0	0	0	0	0	0	0	444
17:00 - 17:59	1	309	63	1	78	3	0	2	0	0	0	0	0	457
18:00 - 18:59	1	234	40	1	36	0	0	2	0	0	0	0	0	314
19:00 - 19:59	1	133	20	0	17	0	0	0	0	0	0	0	0	171
20:00 - 20:59	0	89	22	0	16	0	0	0	0	0	0	0	0	127
21:00 - 21:59	0	50	9	0	6	0	0	0	0	0	0	0	0	65
22:00 - 22:59	0	32	2	0	2	0	0	0	0	0	0	0	0	36
23:00 - 23:59	0	18	0	0	2	0	0	0	0	0	0	0	0	20
Totals	17	5092	734	24	664	29	0	16	9	0	0	0	0	6585
Percent of Total	0.3	77.3	11.1	0.4	10.1	0.4	0.0	0.2	0.1	0.0	0.0	0.0	0.0	100
Percent of AM	0.2	79.1	10.0	0.4	9.6	0.3	0.0	0.3	0.1	0.0	0.0	0.0	0.0	100
Percent of PM	0.3	75.6	12.2	0.4	10.6	0.6	0.0	0.2	0.2	0.0	0.0	0.0	0.0	100

Truck Summary:

Total Trucks: 742

% Trucks: 11.3

AM % Trucks: 10.7

PM % Trucks: 11.9

Classification Scheme: FHWA (ID: 1)

#1 Motorcycles - 2 Axles
#2 Passenger Cars - 2 Axles
#3 Pickup Trucks, Vans - 2 Axles
#4 Buses
#5 Single Unit - 2 Axles, 6 Tires

#6 Single Unit Truck - 3 Axles
#7 Single Unit - 4 Axles
#8 Single Unit - 4 Axles or Less
#9 Double Unit - 5 Axles
#10 Double Unit - 6 Axles or More

#11 Multi-Unit - 5 Axles or Less
#12 Multi-Unit - 6 Axles
#13 Multi-Unit - 7 Axles or More

Daily Northbound Classes Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 40

Location: 3. Pine Dr south of Inspiration Dr

Comments: Aurora, CO

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 - 00:59	0	18	3	0	0	0	0	0	0	0	0	0	0	21
01:00 - 01:59	0	6	5	0	0	0	0	0	0	0	0	0	0	11
02:00 - 02:59	0	3	1	0	0	0	0	0	0	0	0	0	0	4
03:00 - 03:59	0	7	0	0	1	0	0	0	0	0	0	0	0	8
04:00 - 04:59	0	9	0	0	0	0	0	0	0	0	0	0	0	9
05:00 - 05:59	0	14	3	0	9	0	0	0	0	0	0	0	0	26
06:00 - 06:59	0	73	17	0	18	1	0	0	1	0	0	0	0	110
07:00 - 07:59	1	210	27	1	29	4	0	2	0	0	0	0	0	274
08:00 - 08:59	0	244	46	5	46	2	0	0	0	0	0	0	0	343
09:00 - 09:59	0	208	38	1	44	4	0	2	1	0	0	0	0	298
10:00 - 10:59	0	280	44	0	49	1	0	2	0	0	0	0	0	376
11:00 - 11:59	0	322	41	0	53	2	0	1	0	0	0	0	0	419
12:00 - 12:59	0	344	44	2	60	1	0	1	1	0	0	0	0	453
13:00 - 13:59	1	335	45	1	58	9	0	2	0	0	0	0	0	451
14:00 - 14:59	1	379	47	1	44	1	0	3	2	0	0	0	0	478
15:00 - 15:59	1	464	56	2	55	1	0	0	0	0	0	0	0	579
16:00 - 16:59	5	566	57	2	62	0	0	1	0	0	0	0	0	693
17:00 - 17:59	0	542	64	0	71	1	0	1	0	0	0	0	0	679
18:00 - 18:59	0	396	59	0	59	0	0	0	0	0	0	0	0	514
19:00 - 19:59	0	296	36	0	45	0	0	0	0	0	0	0	0	377
20:00 - 20:59	0	210	28	0	28	0	0	0	0	0	0	0	0	266
21:00 - 21:59	0	139	9	0	13	0	0	0	0	0	0	0	0	161
22:00 - 22:59	0	68	6	0	7	0	0	0	0	0	0	0	0	81
23:00 - 23:59	0	32	4	0	0	0	0	0	0	0	0	0	0	36
Totals	9	5165	680	15	751	27	0	15	5	0	0	0	0	6667
Percent of Total	0.1	77.5	10.2	0.2	11.3	0.4	0.0	0.2	0.1	0.0	0.0	0.0	0.0	100
Percent of AM	0.1	73.4	11.8	0.4	13.1	0.7	0.0	0.4	0.1	0.0	0.0	0.0	0.0	100
Percent of PM	0.2	79.1	9.5	0.2	10.5	0.3	0.0	0.2	0.1	0.0	0.0	0.0	0.0	100

Truck Summary:

Total Trucks: 813

% Trucks: 12.2

AM % Trucks: 14.7

PM % Trucks: 11.2

Classification Scheme: FHWA (ID: 1)

#1 Motorcycles - 2 Axles
#2 Passenger Cars - 2 Axles
#3 Pickup Trucks, Vans - 2 Axles
#4 Buses
#5 Single Unit - 2 Axles, 6 Tires

#6 Single Unit Truck - 3 Axles
#7 Single Unit - 4 Axles
#8 Single Unit - 4 Axles or Less
#9 Double Unit - 5 Axles
#10 Double Unit - 6 Axles or More

#11 Multi-Unit - 5 Axles or Less
#12 Multi-Unit - 6 Axles
#13 Multi-Unit - 7 Axles or More

Daily Total Classes Report

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 40

Location: 3. Pine Dr south of Inspiration Dr

Comments: Aurora, CO

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	Total
00:00 - 00:59	0	26	5	0	2	0	0	0	0	0	0	0	0	33
01:00 - 01:59	0	12	6	0	1	0	0	0	0	0	0	0	0	19
02:00 - 02:59	0	7	2	0	0	0	0	0	0	0	0	0	0	9
03:00 - 03:59	0	15	2	0	4	0	0	0	0	0	0	0	0	21
04:00 - 04:59	0	32	5	0	1	0	0	0	0	0	0	0	0	38
05:00 - 05:59	0	114	14	0	22	0	0	0	0	0	0	0	0	150
06:00 - 06:59	0	333	47	1	52	1	0	0	1	0	0	0	0	435
07:00 - 07:59	2	824	100	4	96	5	0	3	2	0	0	0	0	1036
08:00 - 08:59	2	743	98	10	119	3	0	1	0	0	0	0	0	976
09:00 - 09:59	0	568	85	1	83	6	0	5	1	0	0	0	0	749
10:00 - 10:59	2	621	104	3	80	4	0	6	1	0	0	0	0	821
11:00 - 11:59	3	659	81	0	99	5	0	2	0	0	0	0	0	849
12:00 - 12:59	2	634	88	2	89	5	0	2	4	0	0	0	0	826
13:00 - 13:59	2	640	97	5	90	14	0	2	2	0	0	0	0	852
14:00 - 14:59	2	734	92	2	82	2	0	3	2	0	0	0	0	919
15:00 - 15:59	3	839	118	5	106	5	0	1	1	0	0	0	0	1078
16:00 - 16:59	5	908	108	4	109	2	0	1	0	0	0	0	0	1137
17:00 - 17:59	1	851	127	1	149	4	0	3	0	0	0	0	0	1136
18:00 - 18:59	1	630	99	1	95	0	0	2	0	0	0	0	0	828
19:00 - 19:59	1	429	56	0	62	0	0	0	0	0	0	0	0	548
20:00 - 20:59	0	299	50	0	44	0	0	0	0	0	0	0	0	393
21:00 - 21:59	0	189	18	0	19	0	0	0	0	0	0	0	0	226
22:00 - 22:59	0	100	8	0	9	0	0	0	0	0	0	0	0	117
23:00 - 23:59	0	50	4	0	2	0	0	0	0	0	0	0	0	56
Totals	26	10257	1414	39	1415	56	0	31	14	0	0	0	0	13252
Percent of Total	0.2	77.4	10.7	0.3	10.7	0.4	0.0	0.2	0.1	0.0	0.0	0.0	0.0	100
Percent of AM	0.2	77.0	10.7	0.4	10.9	0.5	0.0	0.3	0.1	0.0	0.0	0.0	0.0	100
Percent of PM	0.2	77.7	10.7	0.2	10.5	0.4	0.0	0.2	0.1	0.0	0.0	0.0	0.0	100

Truck Summary:

Total Trucks: 1555

% Trucks: 11.7

AM % Trucks: 12.1

PM % Trucks: 11.5

Classification Scheme: FHWA (ID: 1)

#1 Motorcycles - 2 Axles
#2 Passenger Cars - 2 Axles
#3 Pickup Trucks, Vans - 2 Axles
#4 Buses
#5 Single Unit - 2 Axles, 6 Tires

#6 Single Unit Truck - 3 Axles
#7 Single Unit - 4 Axles
#8 Single Unit - 4 Axles or Less
#9 Double Unit - 5 Axles
#10 Double Unit - 6 Axles or More

#11 Multi-Unit - 5 Axles or Less
#12 Multi-Unit - 6 Axles
#13 Multi-Unit - 7 Axles or More

Daily Southbound Speeds (MPH)

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 40

Location: 3. Pine Dr south of Inspiration Dr

Posted Speed: 40

Comments: Aurora, CO

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	0	2	5	2	2	0	0	0	1	0	0	12
01:00 - 01:59	0	0	0	1	1	1	3	1	1	0	0	0	0	0	0	8
02:00 - 02:59	0	0	0	0	0	2	2	1	0	0	0	0	0	0	0	5
03:00 - 03:59	0	0	0	0	1	1	5	5	1	0	0	0	0	0	0	13
04:00 - 04:59	0	0	0	0	0	3	18	6	2	0	0	0	0	0	0	29
05:00 - 05:59	0	0	0	1	3	18	64	36	2	0	0	0	0	0	0	124
06:00 - 06:59	0	0	1	2	8	61	173	73	6	1	0	0	0	0	0	325
07:00 - 07:59	0	0	0	0	30	252	410	70	0	0	0	0	0	0	0	762
08:00 - 08:59	0	0	0	2	32	234	301	63	0	1	0	0	0	0	0	633
09:00 - 09:59	0	0	0	3	37	187	191	33	0	0	0	0	0	0	0	451
10:00 - 10:59	0	1	3	14	47	204	151	24	1	0	0	0	0	0	0	445
11:00 - 11:59	0	0	0	0	26	177	195	29	2	1	0	0	0	0	0	430
12:00 - 12:59	0	0	1	1	28	164	159	18	2	0	0	0	0	0	0	373
13:00 - 13:59	1	0	0	4	38	115	204	35	2	0	2	0	0	0	0	401
14:00 - 14:59	0	0	0	2	21	155	214	42	6	1	0	0	0	0	0	441
15:00 - 15:59	1	0	0	11	44	170	209	60	4	0	0	0	0	0	0	499
16:00 - 16:59	2	1	4	1	18	98	230	83	5	0	0	0	0	1	1	444
17:00 - 17:59	0	1	5	12	18	107	195	103	12	0	0	3	0	0	1	457
18:00 - 18:59	0	0	0	4	7	37	162	89	13	1	0	1	0	0	0	314
19:00 - 19:59	0	0	0	0	8	28	94	37	4	0	0	0	0	0	0	171
20:00 - 20:59	0	0	0	0	5	28	60	27	7	0	0	0	0	0	0	127
21:00 - 21:59	0	0	0	0	2	11	34	13	5	0	0	0	0	0	0	65
22:00 - 22:59	0	0	0	0	3	5	12	10	5	1	0	0	0	0	0	36
23:00 - 23:59	0	0	0	0	1	3	9	4	3	0	0	0	0	0	0	20
Totals	4	3	14	58	378	2063	3100	864	85	6	2	4	1	1	2	6585
Percent of Total	0.1	0.0	0.2	0.9	5.7	31.3	47.1	13.1	1.3	0.1	0.0	0.1	0.0	0.0	0.0	100
Percent of AM	0.0	0.0	0.1	0.7	5.7	35.3	46.9	10.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	100
Percent of PM	0.1	0.1	0.3	1.0	5.8	27.5	47.3	15.6	2.0	0.1	0.1	0.1	0.0	0.0	0.1	100

Standard Deviation: 4.8 MPH

Ten Mile Pace: 35 to 44 MPH

85th Percentile: 45.0 MPH

Mean Speed: 41.0 MPH

Percent in Ten Mile Pace: 78.4%

Median Speed: 41.2 MPH

15th Percentile: 36.3 MPH

Modal Speed: 42.5 MPH

90th Percentile: 46.8 MPH

95th Percentile: 48.7 MPH

Daily Northbound Speeds (MPH)

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 40

Location: 3. Pine Dr south of Inspiration Dr

Posted Speed: 40

Comments: Aurora, CO

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	1	3	6	9	2	0	0	0	0	0	0	21
01:00 - 01:59	0	0	0	0	0	1	3	2	3	1	1	0	0	0	0	11
02:00 - 02:59	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	4
03:00 - 03:59	0	0	0	0	0	1	2	3	2	0	0	0	0	0	0	8
04:00 - 04:59	0	0	0	0	0	3	0	5	1	0	0	0	0	0	0	9
05:00 - 05:59	0	0	0	0	0	1	8	10	7	0	0	0	0	0	0	26
06:00 - 06:59	0	0	3	1	1	4	36	41	20	2	2	0	0	0	0	110
07:00 - 07:59	0	0	0	3	3	20	82	111	47	4	3	1	0	0	0	274
08:00 - 08:59	0	0	0	0	5	49	148	122	14	1	2	1	0	0	1	343
09:00 - 09:59	0	0	0	2	7	52	135	88	14	0	0	0	0	0	0	298
10:00 - 10:59	0	0	0	0	7	69	167	107	24	1	0	1	0	0	0	376
11:00 - 11:59	0	0	0	0	5	55	151	159	39	9	0	0	0	1	0	419
12:00 - 12:59	0	0	0	0	6	59	200	149	33	3	1	0	0	1	1	453
13:00 - 13:59	0	0	0	3	18	66	180	157	23	3	0	0	0	0	0	450
14:00 - 14:59	0	0	0	0	8	66	206	164	29	1	1	1	0	2	0	478
15:00 - 15:59	0	0	0	0	5	60	266	195	46	5	1	0	0	0	1	579
16:00 - 16:59	0	0	0	2	13	110	318	202	39	6	2	1	0	0	0	693
17:00 - 17:59	0	0	0	0	7	71	298	256	44	3	0	0	0	0	0	679
18:00 - 18:59	0	0	0	0	1	38	175	234	56	8	0	2	0	0	0	514
19:00 - 19:59	0	0	0	0	6	34	164	140	31	0	1	0	0	0	1	377
20:00 - 20:59	0	0	0	0	2	42	106	97	17	2	0	0	0	0	0	266
21:00 - 21:59	0	0	0	0	1	20	70	56	11	3	0	0	0	0	0	161
22:00 - 22:59	0	0	0	0	0	5	27	34	12	1	2	0	0	0	0	81
23:00 - 23:59	0	0	0	0	1	2	13	15	5	0	0	0	0	0	0	36
Totals	0	0	3	11	97	831	2763	2358	519	53	16	7	0	4	4	6666
Percent of Total	0.0	0.0	0.0	0.2	1.5	12.5	41.4	35.4	7.8	0.8	0.2	0.1	0.0	0.1	0.1	100
Percent of AM	0.0	0.0	0.2	0.3	1.5	13.6	39.0	34.7	9.1	0.9	0.4	0.2	0.0	0.1	0.1	100
Percent of PM	0.0	0.0	0.0	0.1	1.4	12.0	42.4	35.6	7.3	0.7	0.2	0.1	0.0	0.1	0.1	100

Standard Deviation:	5.0 MPH	Ten Mile Pace:	40 to 49 MPH	85th Percentile:	49.2 MPH
Mean Speed:	44.5 MPH	Percent in Ten Mile Pace:	76.8%	15th Percentile:	40.1 MPH
Median Speed:	44.3 MPH			90th Percentile:	49.9 MPH
Modal Speed:	42.5 MPH			95th Percentile:	52.6 MPH

Daily Total Speeds (MPH)

Study Date: Tuesday, 04/12/2022

Unit ID: RDC 40

Location: 3. Pine Dr south of Inspiration Dr

Posted Speed: 40

Comments: Aurora, CO

	5-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-99	Total
00:00 - 00:59	0	0	0	0	1	5	11	11	4	0	0	0	1	0	0	33
01:00 - 01:59	0	0	0	1	1	2	6	3	4	1	1	0	0	0	0	19
02:00 - 02:59	0	0	0	0	0	2	4	3	0	0	0	0	0	0	0	9
03:00 - 03:59	0	0	0	0	1	2	7	8	3	0	0	0	0	0	0	21
04:00 - 04:59	0	0	0	0	0	6	18	11	3	0	0	0	0	0	0	38
05:00 - 05:59	0	0	0	1	3	19	72	46	9	0	0	0	0	0	0	150
06:00 - 06:59	0	0	4	3	9	65	209	114	26	3	2	0	0	0	0	435
07:00 - 07:59	0	0	0	3	33	272	492	181	47	4	3	1	0	0	0	1036
08:00 - 08:59	0	0	0	2	37	283	449	185	14	2	2	1	0	0	1	976
09:00 - 09:59	0	0	0	5	44	239	326	121	14	0	0	0	0	0	0	749
10:00 - 10:59	0	1	3	14	54	273	318	131	25	1	0	1	0	0	0	821
11:00 - 11:59	0	0	0	0	31	232	346	188	41	10	0	0	0	1	0	849
12:00 - 12:59	0	0	1	1	34	223	359	167	35	3	1	0	0	1	1	826
13:00 - 13:59	1	0	0	7	56	181	384	192	25	3	2	0	0	0	0	851
14:00 - 14:59	0	0	0	2	29	221	420	206	35	2	1	1	0	2	0	919
15:00 - 15:59	1	0	0	11	49	230	475	255	50	5	1	0	0	0	1	1078
16:00 - 16:59	2	1	4	3	31	208	548	285	44	6	2	1	0	1	1	1137
17:00 - 17:59	0	1	5	12	25	178	493	359	56	3	0	3	0	0	1	1136
18:00 - 18:59	0	0	0	4	8	75	337	323	69	9	0	3	0	0	0	828
19:00 - 19:59	0	0	0	0	14	62	258	177	35	0	1	0	0	0	1	548
20:00 - 20:59	0	0	0	0	7	70	166	124	24	2	0	0	0	0	0	393
21:00 - 21:59	0	0	0	0	3	31	104	69	16	3	0	0	0	0	0	226
22:00 - 22:59	0	0	0	0	3	10	39	44	17	2	2	0	0	0	0	117
23:00 - 23:59	0	0	0	0	2	5	22	19	8	0	0	0	0	0	0	56
Totals	4	3	17	69	475	2894	5863	3222	604	59	18	11	1	5	6	13251
Percent of Total	0.0	0.0	0.1	0.5	3.6	21.8	44.2	24.3	4.6	0.4	0.1	0.1	0.0	0.0	0.0	100
Percent of AM	0.0	0.0	0.1	0.6	4.2	27.3	44.0	19.5	3.7	0.4	0.2	0.1	0.0	0.0	0.0	100
Percent of PM	0.0	0.0	0.1	0.5	3.2	18.4	44.4	27.4	5.1	0.5	0.1	0.1	0.0	0.0	0.1	100

Standard Deviation: 5.2 MPH

Ten Mile Pace: 40 to 49 MPH

85th Percentile: 48.0 MPH

Mean Speed: 42.8 MPH

Percent in Ten Mile Pace: 68.6%

Median Speed: 42.7 MPH

























15th Percentile: 37.5 MPH

Modal Speed: 42.5 MPH

90th Percentile: 49.0 MPH

95th Percentile: 50.3 MPH

Intersection Capacity Worksheets:
2022 Existing

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	13	5	260	18	480	8	344	172	134	256	16
Future Volume (vph)	35	13	5	260	18	480	8	344	172	134	256	16
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	9.7	11.7	11.7	18.3	13.1	13.1	19.9	14.5	14.5	25.3	21.9	21.9
Actuated g/C Ratio	0.19	0.22	0.22	0.35	0.25	0.25	0.38	0.28	0.28	0.48	0.42	0.42
v/c Ratio	0.13	0.02	0.01	0.52	0.02	0.66	0.02	0.39	0.33	0.29	0.19	0.02

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 52.4

Natural Cycle: 105

Control Type: Actuated-Uncoordinated









Maximum v/c Ratio: 0.66













Intersection Signal Delay: 12.4

Intersection Capacity Utilization 56.0%

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

























			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	42	16	6	280	19	516	9	382	191	149	284	18
v/c Ratio	0.13	0.02	0.01	0.52	0.02	0.66	0.02	0.39	0.33	0.29	0.19	0.02
Control Delay	15.4	22.9	0.0	18.2	19.8	7.3	10.0	19.2	5.8	10.6	12.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.4	22.9	0.0	18.2	19.8	7.3	10.0	19.2	5.8	10.6	12.0	0.1
Queue Length 50th (ft)	11	1	0	66	2	0	1	41	0	16	17	0
Queue Length 95th (ft)	27	10	0	148	11	77	9	117	46	71	78	0
Internal Link Dist (ft)	846			846			1151			535		
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	558	1411	703	537	1411	933	666	2153	1038	607	2153	1015
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.01	0.01	0.52	0.01	0.55	0.01	0.18	0.18	0.25	0.13	0.02
Intersection Summary												

HCM 6th Signalized Intersection Summary

11/15/2022

1: Gartrell Rd & Aurora Pkwy
Existing - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	13	5	260	18	480	8	344	172	134	256	16
Future Volume (veh/h)	35	13	5	260	18	480	8	344	172	134	256	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	16	6	280	19	0	9	382	191	149	284	18
Peak Hour Factor	0.83	0.83	0.83	0.93	0.93	0.93	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	370	482	215	603	957		412	874	390	417	1153	514
Arrive On Green	0.03	0.14	0.14	0.16	0.27	0.00	0.01	0.25	0.25	0.09	0.32	0.32
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	42	16	6	280	19	0	9	382	191	149	284	18
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.1	0.2	0.2	6.7	0.2	0.0	0.2	4.9	5.5	3.1	3.2	0.4
Cycle Q Clear(g_c), s	1.1	0.2	0.2	6.7	0.2	0.0	0.2	4.9	5.5	3.1	3.2	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	370	482	215	603	957		412	874	390	417	1153	514
V/C Ratio(X)	0.11	0.03	0.03	0.46	0.02		0.02	0.44	0.49	0.36	0.25	0.03
Avail Cap(c_a), veh/h	688	1257	560	682	1257		764	1919	856	629	1919	856
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.3	20.2	20.1	14.2	14.4	0.0	15.1	17.1	17.4	12.2	13.3	12.4
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.7	2.0	0.2	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.1	0.1	2.3	0.1	0.0	0.1	1.8	2.0	1.0	1.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.3	20.2	20.2	14.4	14.4	0.0	15.1	17.8	19.4	12.4	13.6	12.4
LnGrp LOS	B	C	C	B	B		B	B	B	B	B	B
Approach Vol, veh/h		64			299			582			451	
Approach Delay, s/veh		19.6			14.4			18.3			13.1	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	19.2	12.6	13.3	4.4	23.4	5.4	20.5				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	5.1	7.5	8.7	2.2	2.2	5.2	3.1	2.2				
Green Ext Time (p_c), s	0.1	5.7	0.1	0.0	0.0	3.2	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 15.9
HCM 6th LOS B




Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

Int Delay, s/veh 0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	812	0	0	367	0	3
Future Vol, veh/h	812	0	0	367	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	912	0	0	489	0	8

























Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 245 489
Stage 1	-	- 0 0
Stage 2	-	- 245 489
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 743 480
Stage 1	-	- - -
Stage 2	-	- 796 549
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	-	- 743 0
Mov Cap-2 Maneuver	-	- 743 0
Stage 1	-	- - 0
Stage 2	-	- 796 0

Approach	NB	SB
HCM Control Delay, s	0	
HCM LOS		-

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Timings
11/15/2022

1: Gartrell Rd & Aurora Pkwy
Existing - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	49	22	236	55	247	36	332	290	398	362	26
Future Volume (vph)	60	49	22	236	55	247	36	332	290	398	362	26
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	12.1	10.5	10.5	20.2	12.8	12.8	21.9	14.9	14.9	31.6	26.3	26.3
Actuated g/C Ratio	0.20	0.17	0.17	0.33	0.21	0.21	0.36	0.25	0.25	0.52	0.44	0.44
v/c Ratio	0.21	0.09	0.06	0.57	0.08	0.49	0.09	0.41	0.50	0.70	0.24	0.04

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 60.3

Natural Cycle: 105

Control Type: Actuated-Uncoordinated









Maximum v/c Ratio: 0.70













Intersection Signal Delay: 15.2

Intersection Capacity Utilization 64.6%

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Group Flow (vph)	66	54	24	262	59	266	39	357	312	415	377	27	
v/c Ratio	0.21	0.09	0.06	0.57	0.08	0.49	0.09	0.41	0.50	0.70	0.24	0.04	
Control Delay	16.5	25.7	0.3	21.2	22.4	7.4	10.1	21.9	6.1	18.5	14.0	0.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	16.5	25.7	0.3	21.2	22.4	7.4	10.1	21.9	6.1	18.5	14.0	0.1	
Queue Length 50th (ft)	16	10	0	72	10	0	8	66	0	109	47	0	
Queue Length 95th (ft)	42	26	0	142	26	58	22	102	54	#194	96	0	
Internal Link Dist (ft)	846			846			1151			535			
Turn Bay Length (ft)	180			475	260			230	260			145	435
Base Capacity (vph)	483	1159	601	460	1159	691	612	1770	947	609	1776	861	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.14	0.05	0.04	0.57	0.05	0.38	0.06	0.20	0.33	0.68	0.21	0.03	

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/15/2022

1: Gartrell Rd & Aurora Pkwy
Existing - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	49	22	236	55	247	36	332	290	398	362	26
Future Volume (veh/h)	60	49	22	236	55	247	36	332	290	398	362	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	54	24	262	59	0	39	357	312	415	377	27
Peak Hour Factor	0.91	0.91	0.91	0.90	0.93	0.93	0.93	0.93	0.93	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	367	499	222	529	862		416	990	441	528	1455	649
Arrive On Green	0.04	0.14	0.14	0.15	0.24	0.00	0.02	0.28	0.28	0.15	0.41	0.41
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	66	54	24	262	59	0	39	357	312	415	377	27
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.2	0.9	0.9	8.4	0.9	0.0	1.1	5.7	12.6	11.0	5.0	0.7
Cycle Q Clear(g_c), s	2.2	0.9	0.9	8.4	0.9	0.0	1.1	5.7	12.6	11.0	5.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	367	499	222	529	862		416	990	441	528	1455	649
V/C Ratio(X)	0.18	0.11	0.11	0.50	0.07		0.09	0.36	0.71	0.79	0.26	0.04
Avail Cap(c_a), veh/h	565	948	422	544	948		649	1447	645	528	1455	649
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.6	26.7	26.7	19.7	20.8	0.0	17.7	20.6	23.1	14.9	13.9	12.6
Incr Delay (d2), s/veh	0.1	0.1	0.2	0.3	0.0	0.0	0.0	0.5	4.4	7.0	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.4	0.4	3.2	0.4	0.0	0.4	2.2	4.9	4.9	1.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	26.8	26.9	20.0	20.8	0.0	17.8	21.1	27.5	22.0	14.1	12.7
LnGrp LOS	C	C	C	B	C		B	C	C	C	B	B
Approach Vol, veh/h		144			321			708			819	
Approach Delay, s/veh		25.9			20.1			23.7			18.0	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	25.8	14.4	16.0	5.7	35.2	7.1	23.3				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	14.6	10.4	2.9	3.1	7.0	4.2	2.9				
Green Ext Time (p_c), s	0.0	5.2	0.0	0.2	0.0	4.2	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C




Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	501	0	3	729	2	1
Future Vol, veh/h	501	0	3	729	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	91	91	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	522	0	3	801	3	1

Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 404 804
Stage 1	-	- 0 0
Stage 2	-	- 404 804
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 603 316
Stage 1	-	- - -
Stage 2	-	- 674 396
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	-	- 603 0
Mov Cap-2 Maneuver	-	- 603 0
Stage 1	-	- - 0
Stage 2	-	- 674 0

























Approach	NB	SB
HCM Control Delay, s	0	11
HCM LOS		B

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	603
HCM Lane V/C Ratio	-	-	0.007
HCM Control Delay (s)	-	-	11
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Intersection Capacity Worksheets:
2027 Background
No Pine Drive
Extension

Timings
11/15/2022

1: Gartrell Rd & Aurora Pkwy
2027 Background - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	75	55	275	225	510	70	365	180	140	270	125
Future Volume (vph)	205	75	55	275	225	510	70	365	180	140	270	125
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	22.5	14.1	14.1	27.5	14.6	14.6	23.2	15.4	15.4	27.8	19.3	19.3
Actuated g/C Ratio	0.33	0.21	0.21	0.41	0.22	0.22	0.34	0.23	0.23	0.41	0.29	0.29
v/c Ratio	0.48	0.11	0.14	0.53	0.32	0.80	0.18	0.49	0.38	0.35	0.29	0.25

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 67.6

Natural Cycle: 105

Control Type: Actuated-Uncoordinated









Maximum v/c Ratio: 0.80













Intersection Signal Delay: 17.9

Intersection Capacity Utilization 66.5%

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	223	82	60	296	242	548	76	397	196	152	293	136
v/c Ratio	0.48	0.11	0.14	0.53	0.32	0.80	0.18	0.49	0.38	0.35	0.29	0.25
Control Delay	17.6	23.7	0.7	17.9	24.7	16.8	13.6	26.0	6.5	15.2	21.6	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	23.7	0.7	17.9	24.7	16.8	13.6	26.0	6.5	15.2	21.6	5.8
Queue Length 50th (ft)	56	14	0	77	45	38	18	76	0	38	52	0
Queue Length 95th (ft)	121	35	0	162	86	#214	44	131	48	79	93	39
Internal Link Dist (ft)	846			846			1151			535		
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	513	1023	546	571	1023	764	560	1561	808	498	1561	774
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.08	0.11	0.52	0.24	0.72	0.14	0.25	0.24	0.31	0.19	0.18

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/15/2022

1: Gartrell Rd & Aurora Pkwy
2027 Background - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	75	55	275	225	510	70	365	180	140	270	125
Future Volume (veh/h)	205	75	55	275	225	510	70	365	180	140	270	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	223	82	60	296	242	0	76	397	196	152	293	136
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	522	607	270	604	728		412	848	378	397	995	444
Arrive On Green	0.13	0.17	0.17	0.17	0.20	0.00	0.05	0.24	0.24	0.09	0.28	0.28
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	223	82	60	296	242	0	76	397	196	152	293	136
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.9	1.2	1.9	7.9	3.5	0.0	1.9	5.7	6.4	3.7	3.8	4.0
Cycle Q Clear(g_c), s	5.9	1.2	1.9	7.9	3.5	0.0	1.9	5.7	6.4	3.7	3.8	4.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	522	607	270	604	728		412	848	378	397	995	444
V/C Ratio(X)	0.43	0.14	0.22	0.49	0.33		0.18	0.47	0.52	0.38	0.29	0.31
Avail Cap(c_a), veh/h	618	1137	506	639	1137		658	1735	774	569	1735	774
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.6	20.9	21.2	15.7	20.1	0.0	15.9	19.4	19.7	14.7	16.8	16.8
Incr Delay (d2), s/veh	0.2	0.1	0.4	0.2	0.3	0.0	0.1	0.9	2.3	0.2	0.3	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.5	0.7	2.8	1.3	0.0	0.7	2.2	2.4	1.2	1.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.8	21.0	21.6	15.9	20.4	0.0	15.9	20.3	22.0	15.0	17.1	17.7
LnGrp LOS	B	C	C	B	C		B	C	C	B	B	B
Approach Vol, veh/h		365			538			669			581	
Approach Delay, s/veh		18.5			17.9			20.3			16.7	
Approach LOS		B			B			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	20.2	13.8	16.1	6.8	22.6	11.8	18.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	5.7	8.4	9.9	3.9	3.9	6.0	7.9	5.5				
Green Ext Time (p_c), s	0.1	5.8	0.0	0.5	0.0	4.2	0.1	1.1				

Intersection Summary

HCM 6th Ctrl Delay 18.4
HCM 6th LOS B




Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

Int Delay, s/veh 0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	865	0	0	390	0	5
Future Vol, veh/h	865	0	0	390	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	972	0	0	520	0	13

























Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 260 520
Stage 1	-	- 0 0
Stage 2	-	- 260 520
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 729 461
Stage 1	-	- - -
Stage 2	-	- 783 532
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	-	- 729 0
Mov Cap-2 Maneuver	-	- 729 0
Stage 1	-	- - 0
Stage 2	-	- 783 0

Approach	NB	SB
HCM Control Delay, s	0	
HCM LOS		-

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Timings
11/15/2022









3: SH-83/Parker Rd & Aurora Pkwy
2027 Background - AM Peak Hour













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	5	25	295	5	300	30	1940	145	150	2005	30
Future Volume (vph)	25	5	25	295	5	300	30	1940	145	150	2005	30
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4	8					2			6
Detector Phase	7	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	2.0	8.0	8.0	6.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	64.0	64.0	29.0	82.0	82.0
Total Split (%)	5.8%	13.3%	13.3%	9.2%	16.7%		9.2%	53.3%	53.3%	24.2%	68.3%	68.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	8.6	9.2	9.2	18.7	14.1	30.1	6.1	73.2	73.2	11.0	82.6	82.6
Actuated g/C Ratio	0.07	0.08	0.08	0.16	0.12	0.25	0.05	0.61	0.61	0.09	0.69	0.69
v/c Ratio	0.25	0.03	0.10	0.83	0.02	0.47	0.37	0.68	0.15	0.52	0.62	0.03

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 20.9
 Intersection Capacity Utilization 73.4%
 Analysis Period (min) 15

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

 Ø1	 Ø2 (R)	 Ø3	 Ø4
29 s	64 s	11 s	16 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
11 s	82 s	7 s	20 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	5	27	321	5	326	33	2109	158	163	2179	33
v/c Ratio	0.25	0.03	0.10	0.83	0.02	0.47	0.37	0.68	0.15	0.52	0.62	0.03
Control Delay	50.4	51.2	0.7	66.1	47.4	40.2	67.1	17.8	2.0	57.5	12.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.4	51.2	0.7	66.1	47.4	40.2	67.1	17.8	2.0	57.5	12.4	0.0
Queue Length 50th (ft)	18	4	0	116	4	122	25	398	0	62	373	0
Queue Length 95th (ft)	45	17	0	#198	16	167	60	486	27	96	424	0
Internal Link Dist (ft)		328			3611			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	106	155	285	388	222	978	89	3101	1029	686	3500	1126
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.03	0.09	0.83	0.02	0.33	0.37	0.68	0.15	0.24	0.62	0.03

Intersection Summary

























95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/15/2022

3: SH-83/Parker Rd & Aurora Pkwy

2027 Background - AM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	5	25	295	5	300	30	1940	145	150	2005	30
Future Volume (veh/h)	25	5	25	295	5	300	30	1940	145	150	2005	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	5	27	321	5	326	33	2109	158	163	2179	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	177	156	132	509	218	510	59	3131	972	228	3298	1024
Arrive On Green	0.02	0.08	0.08	0.05	0.12	0.12	0.03	0.61	0.61	0.07	0.65	0.65
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	27	5	27	321	5	326	33	2109	158	163	2179	33
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	1.7	0.3	1.9	6.0	0.3	13.0	2.2	32.7	5.1	5.5	31.6	0.9
Cycle Q Clear(g_c), s	1.7	0.3	1.9	6.0	0.3	13.0	2.2	32.7	5.1	5.5	31.6	0.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	177	156	132	509	218	510	59	3131	972	228	3298	1024
V/C Ratio(X)	0.15	0.03	0.20	0.63	0.02	0.64	0.56	0.67	0.16	0.71	0.66	0.03
Avail Cap(c_a), veh/h	177	156	132	509	218	510	89	3131	972	691	3298	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.3	50.6	51.3	49.6	46.9	45.4	57.1	15.3	10.0	54.9	13.1	7.7
Incr Delay (d2), s/veh	0.4	0.1	0.8	2.5	0.0	2.7	7.9	1.2	0.4	4.1	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.1	0.8	2.0	0.1	4.7	1.1	12.4	1.8	2.4	10.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.7	50.6	52.0	52.1	47.0	48.1	65.0	16.5	10.3	59.1	14.2	7.7
LnGrp LOS	D	D	D	D	D	D	E	B	B	E	B	A
Approach Vol, veh/h	59				652				2300			
Approach Delay, s/veh	50.9				50.0				16.7			
Approach LOS	D				D				B			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.9	80.1	11.0	16.0	9.0	84.0	7.0	20.0				
Change Period (Y+Rc), s	5.0	6.5	5.0	6.0	5.0	6.5	5.0	6.0				
Max Green Setting (Gmax), s	24.0	57.5	6.0	10.0	6.0	75.5	2.0	14.0				
Max Q Clear Time (g_c+I1), s	7.5	34.7	8.0	3.9	4.2	33.6	3.7	15.0				
Green Ext Time (p_c), s	0.4	17.6	0.0	0.0	0.0	23.6	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	21.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	250	15	10	355	10	10	25	10	10	30	10
Future Vol, veh/h	10	250	15	10	355	10	10	25	10	10	30	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	272	16	11	386	11	11	27	11	11	33	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	397	0	0	288	0	0	534	721	144	586	724	199
Stage 1	-	-	-	-	-	-	302	302	-	414	414	-
Stage 2	-	-	-	-	-	-	232	419	-	172	310	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1158	-	-	1271	-	-	429	352	877	394	350	809
Stage 1	-	-	-	-	-	-	682	663	-	586	591	-
Stage 2	-	-	-	-	-	-	750	588	-	813	658	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1158	-	-	1271	-	-	387	346	877	361	344	809
Mov Cap-2 Maneuver	-	-	-	-	-	-	387	346	-	361	344	-
Stage 1	-	-	-	-	-	-	676	657	-	581	586	-
Stage 2	-	-	-	-	-	-	693	583	-	762	652	-

























Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	14.9	15.6
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	411	1158	-	-	1271	-	-	393
HCM Lane V/C Ratio	0.119	0.009	-	-	0.009	-	-	0.138
HCM Control Delay (s)	14.9	8.1	-	-	7.9	-	-	15.6
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.5

Intersection						
Intersection Delay, s/veh	4.3					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	323		538		3	92
Demand Flow Rate, veh/h	330		549		3	94
Vehicles Circulating, veh/h	5		40		328	550
Vehicles Exiting, veh/h	639		291		7	39
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	3.6		4.5		3.4	5.2
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.470	0.530	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	155	175	258	291	3	94
Cap Entry Lane, veh/h	1344	1414	1301	1373	1075	890
Entry HV Adj Factor	0.980	0.979	0.981	0.980	1.000	0.979
Flow Entry, veh/h	152	171	253	285	3	92
Cap Entry, veh/h	1317	1385	1276	1346	1075	871
V/C Ratio	0.115	0.124	0.198	0.212	0.003	0.106
Control Delay, s/veh	3.7	3.6	4.5	4.5	3.4	5.2
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	0	1	1	0	0

Timings
11/15/2022

1: Gartrell Rd & Aurora Pkwy
2027 Background - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	165	90	250	150	260	100	350	310	420	385	105
Future Volume (vph)	180	165	90	250	150	260	100	350	310	420	385	105
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	21.7	10.9	10.9	23.8	11.9	11.9	24.0	15.6	15.6	32.4	22.2	22.2
Actuated g/C Ratio	0.32	0.16	0.16	0.35	0.18	0.18	0.36	0.23	0.23	0.48	0.33	0.33
v/c Ratio	0.43	0.31	0.27	0.56	0.26	0.55	0.26	0.47	0.54	0.86	0.36	0.19

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 67.6

Natural Cycle: 105

Control Type: Actuated-Uncoordinated









Maximum v/c Ratio: 0.86













Intersection Signal Delay: 19.2

Intersection Capacity Utilization 72.4%

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	196	179	98	269	161	280	109	380	337	457	418	114
v/c Ratio	0.43	0.31	0.27	0.56	0.26	0.55	0.26	0.47	0.54	0.86	0.36	0.19
Control Delay	17.9	27.8	4.8	20.6	26.7	8.7	12.2	24.5	6.4	32.6	19.8	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	27.8	4.8	20.6	26.7	8.7	12.2	24.5	6.4	32.6	19.8	4.0
Queue Length 50th (ft)	52	35	0	75	30	0	23	71	0	124	71	0
Queue Length 95th (ft)	110	68	23	151	62	62	53	116	58	#313	122	27
Internal Link Dist (ft)	846		846		846		1151		1151		535	
Turn Bay Length (ft)	180	475		260	230		260	145		435		
Base Capacity (vph)	521	1004	538	510	1004	644	536	1532	876	532	1532	761
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.18	0.18	0.53	0.16	0.43	0.20	0.25	0.38	0.86	0.27	0.15

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/15/2022

1: Gartrell Rd & Aurora Pkwy
2027 Background - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	165	90	250	150	260	100	350	310	420	385	105
Future Volume (veh/h)	180	165	90	250	150	260	100	350	310	420	385	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	196	179	98	269	161	0	109	380	337	457	418	114
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	468	492	219	467	606		462	1032	460	515	1342	598
Arrive On Green	0.12	0.14	0.14	0.15	0.17	0.00	0.06	0.29	0.29	0.15	0.38	0.38
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	196	179	98	269	161	0	109	380	337	457	418	114
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.8	3.4	4.2	9.2	2.9	0.0	3.1	6.2	14.1	11.0	6.1	3.5
Cycle Q Clear(g_c), s	6.8	3.4	4.2	9.2	2.9	0.0	3.1	6.2	14.1	11.0	6.1	3.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	468	492	219	467	606		462	1032	460	515	1342	598
V/C Ratio(X)	0.42	0.36	0.45	0.58	0.27		0.24	0.37	0.73	0.89	0.31	0.19
Avail Cap(c_a), veh/h	525	918	409	467	918		618	1401	625	515	1401	625
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	28.7	29.1	21.8	26.5	0.0	16.4	20.7	23.5	17.5	16.1	15.3
Incr Delay (d2), s/veh	0.2	0.5	1.4	1.2	0.2	0.0	0.1	0.5	5.2	16.4	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	1.4	1.6	3.7	1.2	0.0	1.2	2.4	5.5	6.8	2.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.1	29.2	30.5	22.9	26.7	0.0	16.5	21.2	28.7	33.9	16.4	15.7
LnGrp LOS	C	C	C	C	C		B	C	C	C	B	B
Approach Vol, veh/h		473			430			826			989	
Approach Delay, s/veh		26.9			24.3			23.6			24.4	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	27.3	15.0	16.2	8.6	33.8	12.6	18.5				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	16.1	11.2	6.2	5.1	8.1	8.8	4.9				
Green Ext Time (p_c), s	0.0	5.3	0.0	1.1	0.0	5.3	0.0	0.7				




Intersection Summary

HCM 6th Ctrl Delay 24.6
HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	535	0	5	775	2	1
Future Vol, veh/h	535	0	5	775	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	601	0	7	1033	5	3

























Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 524 1040
Stage 1	-	- 0 0
Stage 2	-	- 524 1040
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 514 230
Stage 1	-	- - -
Stage 2	-	- 594 307
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- 514 0
Mov Cap-2 Maneuver	-	- 514 0
Stage 1	-	- - 0
Stage 2	-	- 594 0

Approach	NB	SB
HCM Control Delay, s	0	12.1
HCM LOS		B

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	514
HCM Lane V/C Ratio	-	-	0.015
HCM Control Delay (s)	-	-	12.1
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Timings
11/15/2022











3: SH-83/Parker Rd & Aurora Pkwy
2027 Background - PM Peak Hour













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	5	40	160	5	170	25	2245	320	205	2055	50
Future Volume (vph)	35	5	40	160	5	170	25	2245	320	205	2055	50
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4	8					2			6
Detector Phase	7	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	2.0	8.0	8.0	6.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	64.0	64.0	29.0	82.0	82.0
Total Split (%)	5.8%	13.3%	13.3%	9.2%	16.7%		9.2%	53.3%	53.3%	24.2%	68.3%	68.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	9.8	8.6	8.6	18.0	13.4	31.5	6.4	71.8	71.8	13.1	82.9	82.9
Actuated g/C Ratio	0.08	0.07	0.07	0.15	0.11	0.26	0.05	0.60	0.60	0.11	0.69	0.69
v/c Ratio	0.31	0.04	0.16	0.50	0.02	0.25	0.28	0.80	0.32	0.60	0.64	0.05

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 20.1
 Intersection Capacity Utilization 75.0%
 Analysis Period (min) 15

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

 Ø1	 Ø2 (R)		 Ø3	 Ø4
29 s	64 s		11 s	16 s
 Ø5	 Ø6 (R)		 Ø7	 Ø8
11 s	82 s		7 s	20 s

























												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	38	5	43	174	5	185	27	2440	348	223	2234	54
v/c Ratio	0.31	0.04	0.16	0.50	0.02	0.25	0.28	0.80	0.32	0.60	0.64	0.05
Control Delay	52.1	51.8	1.3	49.5	47.8	35.2	62.6	22.4	2.2	57.4	12.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.1	51.8	1.3	49.5	47.8	35.2	62.6	22.4	2.2	57.4	12.7	0.1
Queue Length 50th (ft)	25	4	0	61	4	65	20	520	0	86	382	0
Queue Length 95th (ft)	57	17	0	94	16	94	52	664	43	123	442	0
Internal Link Dist (ft)	328			3611			3398			668		
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	121	155	285	349	232	938	95	3043	1086	686	3513	1130
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.03	0.15	0.50	0.02	0.20	0.28	0.80	0.32	0.33	0.64	0.05
Intersection Summary												







HCM 6th Signalized Intersection Summary

11/15/2022

3: SH-83/Parker Rd & Aurora Pkwy

2027 Background - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	5	40	160	5	170	25	2245	320	205	2055	50
Future Volume (veh/h)	35	5	40	160	5	170	25	2245	320	205	2055	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	5	43	174	5	185	27	2440	348	223	2234	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	125	106	462	187	515	53	3121	969	292	3402	1056
Arrive On Green	0.02	0.07	0.07	0.05	0.10	0.10	0.03	0.61	0.61	0.08	0.67	0.67
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	38	5	43	174	5	185	27	2440	348	223	2234	54
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	2.0	0.3	3.1	5.6	0.3	7.0	1.8	42.7	13.1	7.6	31.2	1.4
Cycle Q Clear(g_c), s	2.0	0.3	3.1	5.6	0.3	7.0	1.8	42.7	13.1	7.6	31.2	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	169	125	106	462	187	515	53	3121	969	292	3402	1056
V/C Ratio(X)	0.22	0.04	0.41	0.38	0.03	0.36	0.51	0.78	0.36	0.76	0.66	0.05
Avail Cap(c_a), veh/h	169	156	132	462	218	561	89	3121	969	691	3402	1056
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	52.4	53.7	48.4	48.7	42.7	57.4	17.4	11.6	53.8	11.9	6.9
Incr Delay (d2), s/veh	0.7	0.1	2.5	0.5	0.1	0.4	7.4	2.0	1.0	4.1	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.1	1.3	2.4	0.1	2.4	0.9	16.3	4.8	3.3	9.7	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	52.5	56.2	48.9	48.8	43.2	64.8	19.4	12.7	57.9	12.9	7.0
LnGrp LOS	D	D	E	D	D	D	E	B	B	E	B	A
Approach Vol, veh/h	86			364				2815			2511	
Approach Delay, s/veh	54.2			46.0				19.0			16.8	
Approach LOS	D			D				B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.1	79.9	11.0	14.0	8.6	86.4	7.0	18.0				
Change Period (Y+Rc), s	5.0	6.5	5.0	6.0	5.0	6.5	5.0	6.0				
Max Green Setting (Gmax), s	24.0	57.5	6.0	10.0	6.0	75.5	2.0	14.0				
Max Q Clear Time (g_c+I1), s	9.6	44.7	7.6	5.1	3.8	33.2	4.0	9.0				
Green Ext Time (p_c), s	0.6	11.8	0.0	0.0	0.0	24.8	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay	20.2											
HCM 6th LOS	C											
Notes												

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	275	10	15	200	10	15	25	10	10	30	15
Future Vol, veh/h	10	275	10	15	200	10	15	25	10	10	30	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	299	11	16	217	11	16	27	11	11	33	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	228	0	0	310	0	0	484	587	155	440	587	114
Stage 1	-	-	-	-	-	-	327	327	-	255	255	-
Stage 2	-	-	-	-	-	-	157	260	-	185	332	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1337	-	-	1247	-	-	466	420	863	501	420	917
Stage 1	-	-	-	-	-	-	660	646	-	727	695	-
Stage 2	-	-	-	-	-	-	829	692	-	799	643	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1337	-	-	1247	-	-	423	411	863	462	411	917
Mov Cap-2 Maneuver	-	-	-	-	-	-	423	411	-	462	411	-
Stage 1	-	-	-	-	-	-	655	641	-	721	686	-
Stage 2	-	-	-	-	-	-	766	683	-	749	638	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.5	13.8	13.3
HCM LOS			B	B

























Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	463	1337	-	-	1247	-	-	496
HCM Lane V/C Ratio	0.117	0.008	-	-	0.013	-	-	0.121
HCM Control Delay (s)	13.8	7.7	-	-	7.9	-	-	13.3
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.4

Intersection						
Intersection Delay, s/veh	4.2					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		1	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	546		282		10	
Demand Flow Rate, veh/h	557		288		10	
Vehicles Circulating, veh/h	5		116		555	
Vehicles Exiting, veh/h	360		449		7	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	4.3		3.9		4.2	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.469	0.531	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	262	295	135	153	10	72
Cap Entry Lane, veh/h	1344	1414	1213	1287	886	1107
Entry HV Adj Factor	0.980	0.981	0.983	0.978	1.000	0.986
Flow Entry, veh/h	257	290	133	150	10	71
Cap Entry, veh/h	1317	1388	1193	1259	886	1092
V/C Ratio	0.195	0.209	0.111	0.119	0.011	0.065
Control Delay, s/veh	4.4	4.3	4.0	3.8	4.2	3.9
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	0	0	0	0

Intersection Capacity Worksheets:
2027 Background
WITH Pine Drive
Extension

Timings
11/18/2022

1: Gartrell Rd & Aurora Pkwy
2027 Background with Pine Ext - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	300	125	55	275	225	510	70	265	130	140	100	295
Future Volume (vph)	300	125	55	275	225	510	70	265	130	140	100	295
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

Intersection Summary









Cycle Length: 90













Actuated Cycle Length: 65

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

























			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	326	136	60	296	242	548	76	288	141	152	109	321
v/c Ratio	0.64	0.18	0.14	0.52	0.33	0.78	0.17	0.41	0.33	0.34	0.12	0.50
Control Delay	19.9	22.4	0.7	16.1	23.8	13.3	13.9	25.9	7.6	15.4	21.6	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	22.4	0.7	16.1	23.8	13.3	13.9	25.9	7.6	15.4	21.6	6.2
Queue Length 50th (ft)	77	23	0	69	42	23	17	51	0	36	17	0
Queue Length 95th (ft)	163	50	0	147	81	135	45	98	43	81	41	59
Internal Link Dist (ft)	846			846			1151			535		
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	530	1054	559	584	1054	802	582	1609	797	512	1609	894
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.13	0.11	0.51	0.23	0.68	0.13	0.18	0.18	0.30	0.07	0.36
Intersection Summary												

HCM 6th Signalized Intersection Summary

11/18/2022

1: Gartrell Rd & Aurora Pkwy
2027 Background with Pine Ext - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	125	55	275	225	510	70	265	130	140	100	295
Future Volume (veh/h)	300	125	55	275	225	510	70	265	130	140	100	295
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	326	136	60	296	242	0	76	288	141	152	109	321
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	562	649	289	593	602		424	814	363	434	963	430
Arrive On Green	0.18	0.18	0.18	0.17	0.17	0.00	0.05	0.23	0.23	0.09	0.27	0.27
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	326	136	60	296	242	0	76	288	141	152	109	321
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	8.8	2.0	1.9	8.0	3.6	0.0	1.9	4.1	4.5	3.8	1.4	11.1
Cycle Q Clear(g_c), s	8.8	2.0	1.9	8.0	3.6	0.0	1.9	4.1	4.5	3.8	1.4	11.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	562	649	289	593	602		424	814	363	434	963	430
V/C Ratio(X)	0.58	0.21	0.21	0.50	0.40		0.18	0.35	0.39	0.35	0.11	0.75
Avail Cap(c_a), veh/h	570	1126	501	625	1126		666	1719	767	601	1719	767
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.8	20.8	20.8	15.9	22.2	0.0	16.4	19.4	19.6	15.1	16.4	20.0
Incr Delay (d2), s/veh	0.9	0.2	0.4	0.2	0.4	0.0	0.1	0.6	1.4	0.2	0.1	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.8	0.7	2.9	1.4	0.0	0.7	1.6	1.7	1.3	0.5	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.7	21.0	21.2	16.2	22.6	0.0	16.5	19.9	21.0	15.2	16.5	25.4
LnGrp LOS	B	C	C	B	C		B	B	C	B	B	C
Approach Vol, veh/h		522			538			505			582	
Approach Delay, s/veh		18.3			19.1			19.7			21.1	
Approach LOS		B			B			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	19.7	13.9	17.0	6.8	22.3	14.7	16.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	5.8	6.5	10.0	4.0	3.9	13.1	10.8	5.6				
Green Ext Time (p_c), s	0.1	4.2	0.0	0.8	0.0	3.2	0.0	1.1				












Intersection Summary

HCM 6th Ctrl Delay 19.6
HCM 6th LOS B

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	 				
Traffic Volume (vph)	690	165	235	20	195
Future Volume (vph)	690	165	235	20	195
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	3	2		1	6
Permitted Phases			2	6	
Detector Phase	3	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	11.0	24.0	24.0	11.0	24.0
Total Split (s)	25.0	24.0	24.0	11.0	35.0
Total Split (%)	41.7%	40.0%	40.0%	18.3%	58.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min

Intersection Summary





Cycle Length: 60






Actuated Cycle Length: 39.5

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Pine Dr & Inspiration Dr












 Ø1	 Ø2	 Ø3
11 s	24 s	25 s
 Ø6		
35 s		

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	766	179	255	22	212
v/c Ratio	0.64	0.33	0.40	0.06	0.34
Control Delay	14.3	14.7	4.7	9.4	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	14.7	4.7	9.4	11.9
Queue Length 50th (ft)	56	27	0	3	33
Queue Length 95th (ft)	170	96	45	14	78
Internal Link Dist (ft)	290	473			411
Turn Bay Length (ft)					
Base Capacity (vph)	1734	890	889	392	1435
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.20	0.29	0.06	0.15
Intersection Summary					

HCM 6th Signalized Intersection Summary

11/18/2022

2: Pine Dr & Inspiration Dr
2027 Background with Pine Ext - AM Peak Hour

























						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	690	15	165	235	20	195
Future Volume (veh/h)	690	15	165	235	20	195
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	765	0	179	255	22	212
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1047	466	454	384	378	776
Arrive On Green	0.29	0.00	0.24	0.24	0.03	0.42
Sat Flow, veh/h	3563	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	765	0	179	255	22	212
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	8.0	0.0	3.3	6.0	0.4	3.1
Cycle Q Clear(g_c), s	8.0	0.0	3.3	6.0	0.4	3.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1047	466	454	384	378	776
V/C Ratio(X)	0.73	0.00	0.39	0.66	0.06	0.27
Avail Cap(c_a), veh/h	1642	730	816	692	546	1315
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.1	0.0	13.1	14.1	10.1	8.0
Incr Delay (d2), s/veh	1.0	0.0	0.6	2.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	1.2	2.0	0.1	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.1	0.0	13.6	16.1	10.1	8.1
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	765		434			234
Approach Delay, s/veh	14.1		15.1			8.3
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.1	16.0			23.1	18.1
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	5.0	18.0			29.0	19.0
Max Q Clear Time (g_c+I1), s	2.4	8.0			5.1	10.0
Green Ext Time (p_c), s	0.0	1.4			1.2	2.2

Intersection Summary

HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	5	25	280	5	295	30	1945	140	150	2010	30
Future Volume (vph)	25	5	25	280	5	295	30	1945	140	150	2010	30
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4	8					2			6
Detector Phase	7	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	2.0	8.0	8.0	6.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	64.0	64.0	29.0	82.0	82.0
Total Split (%)	5.8%	13.3%	13.3%	9.2%	16.7%		9.2%	53.3%	53.3%	24.2%	68.3%	68.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 120









Actuated Cycle Length: 120













Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

			
Ø1	Ø2 (R)	Ø3	Ø4
29 s	64 s	11 s	16 s
			
Ø5	Ø6 (R)	Ø7	Ø8
11 s	82 s	7 s	20 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	5	27	304	5	321	33	2114	152	163	2185	33
v/c Ratio	0.25	0.03	0.10	0.79	0.02	0.46	0.37	0.68	0.15	0.52	0.62	0.03
Control Delay	50.4	51.2	0.7	62.6	47.4	40.1	67.1	17.8	1.8	57.5	12.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.4	51.2	0.7	62.6	47.4	40.1	67.1	17.8	1.8	57.5	12.4	0.0
Queue Length 50th (ft)	18	4	0	109	4	120	25	400	0	62	375	0
Queue Length 95th (ft)	45	17	0	#181	16	164	60	488	25	96	426	0
Internal Link Dist (ft)	328			3611			3398			668		
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	106	155	285	386	221	977	89	3104	1030	686	3503	1127
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.03	0.09	0.79	0.02	0.33	0.37	0.68	0.15	0.24	0.62	0.03

Intersection Summary

























95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.







HCM 6th Signalized Intersection Summary

11/18/2022

3: SH-83/Parker Rd & Aurora Pkwy

2027 Background with Pine Ext - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	5	25	280	5	295	30	1945	140	150	2010	30
Future Volume (veh/h)	25	5	25	280	5	295	30	1945	140	150	2010	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	5	27	304	5	321	33	2114	152	163	2185	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	178	156	132	509	218	510	59	3131	972	228	3298	1024
Arrive On Green	0.02	0.08	0.08	0.05	0.12	0.12	0.03	0.61	0.61	0.07	0.65	0.65
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	27	5	27	304	5	321	33	2114	152	163	2185	33
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	1.7	0.3	1.9	6.0	0.3	12.8	2.2	32.8	4.9	5.5	31.8	0.9
Cycle Q Clear(g_c), s	1.7	0.3	1.9	6.0	0.3	12.8	2.2	32.8	4.9	5.5	31.8	0.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	178	156	132	509	218	510	59	3131	972	228	3298	1024
V/C Ratio(X)	0.15	0.03	0.20	0.60	0.02	0.63	0.56	0.68	0.16	0.71	0.66	0.03
Avail Cap(c_a), veh/h	178	156	132	509	218	510	89	3131	972	691	3298	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.3	50.6	51.3	49.2	46.9	45.3	57.1	15.3	9.9	54.9	13.2	7.7
Incr Delay (d2), s/veh	0.4	0.1	0.8	1.9	0.0	2.5	7.9	1.2	0.3	4.1	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.1	0.8	1.6	0.1	4.6	1.1	12.4	1.8	2.4	10.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.7	50.6	52.0	51.1	47.0	47.8	65.0	16.5	10.3	59.1	14.2	7.7
LnGrp LOS	D	D	D	D	D	D	E	B	B	E	B	A
Approach Vol, veh/h		59			630			2299			2381	
Approach Delay, s/veh		50.9			49.4			16.8			17.2	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.9	80.1	11.0	16.0	9.0	84.0	7.0	20.0				
Change Period (Y+Rc), s	5.0	6.5	5.0	6.0	5.0	6.5	5.0	6.0				
Max Green Setting (Gmax), s	24.0	57.5	6.0	10.0	6.0	75.5	2.0	14.0				
Max Q Clear Time (g_c+I1), s	7.5	34.8	8.0	3.9	4.2	33.8	3.7	14.8				
Green Ext Time (p_c), s	0.4	17.6	0.0	0.0	0.0	23.6	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			21.2									
HCM 6th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	395	10	10	520	10	10	25	10	10	30	10
Future Vol, veh/h	10	395	10	10	520	10	10	25	10	10	30	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	429	11	11	565	11	11	27	11	11	33	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	576	0	0	440	0	0	778	1055	220	843	1055	288
Stage 1	-	-	-	-	-	-	457	457	-	593	593	-
Stage 2	-	-	-	-	-	-	321	598	-	250	462	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	993	-	-	1116	-	-	286	224	784	257	224	709
Stage 1	-	-	-	-	-	-	553	566	-	459	492	-
Stage 2	-	-	-	-	-	-	665	489	-	732	563	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	993	-	-	1116	-	-	246	219	784	226	219	709
Mov Cap-2 Maneuver	-	-	-	-	-	-	246	219	-	226	219	-
Stage 1	-	-	-	-	-	-	547	560	-	454	487	-
Stage 2	-	-	-	-	-	-	605	484	-	679	557	-

























Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	21.3	22.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	269	993	-	-	1116	-	-	256
HCM Lane V/C Ratio	0.182	0.011	-	-	0.01	-	-	0.212
HCM Control Delay (s)	21.3	8.7	-	-	8.3	-	-	22.8
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-	-	0.8

Intersection						
Intersection Delay, s/veh	4.2					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		1	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	317		516		3	
Demand Flow Rate, veh/h	324		526		3	
Vehicles Circulating, veh/h	5		40		322	
Vehicles Exiting, veh/h	616		285		7	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	3.6		4.4		3.4	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.469	0.531	0.470	0.530	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	152	172	247	279	3	94
Cap Entry Lane, veh/h	1344	1414	1301	1373	1080	907
Entry HV Adj Factor	0.982	0.978	0.981	0.980	1.000	0.979
Flow Entry, veh/h	149	168	242	273	3	92
Cap Entry, veh/h	1319	1383	1277	1345	1080	888
V/C Ratio	0.113	0.122	0.190	0.203	0.003	0.104
Control Delay, s/veh	3.6	3.6	4.4	4.4	3.4	5.0
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	0	1	1	0	0

Timings
11/18/2022

1: Gartrell Rd & Aurora Pkwy
2027 Background with Pine Ext - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	310	230	90	250	150	260	95	190	165	420	285	205
Future Volume (vph)	310	230	90	250	150	260	95	190	165	420	285	205
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

Intersection Summary









Cycle Length: 90













Actuated Cycle Length: 63.9

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	337	250	98	269	161	280	103	207	179	457	310	223
v/c Ratio	0.63	0.38	0.25	0.55	0.27	0.56	0.26	0.32	0.41	0.85	0.31	0.37
Control Delay	20.1	25.7	4.5	17.9	25.0	8.6	13.1	24.5	7.5	32.1	20.8	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	25.7	4.5	17.9	25.0	8.6	13.1	24.5	7.5	32.1	20.8	5.5
Queue Length 50th (ft)	87	45	0	66	28	0	22	36	0	124	51	0
Queue Length 95th (ft)	167	83	22	131	57	59	51	67	46	#234	93	49
Internal Link Dist (ft)	846			846			1151			535		
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	547	1056	559	529	1056	662	529	1612	818	541	1612	842
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.24	0.18	0.51	0.15	0.42	0.19	0.13	0.22	0.84	0.19	0.26

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/18/2022

1: Gartrell Rd & Aurora Pkwy
2027 Background with Pine Ext - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	230	90	250	150	260	95	190	165	420	285	205
Future Volume (veh/h)	310	230	90	250	150	260	95	190	165	420	285	205
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	337	250	98	269	161	0	103	207	179	457	310	223
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	562	627	279	502	562		392	668	298	554	1045	466
Arrive On Green	0.17	0.18	0.18	0.15	0.16	0.00	0.07	0.19	0.19	0.17	0.29	0.29
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	337	250	98	269	161	0	103	207	179	457	310	223
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	10.0	4.0	3.5	7.9	2.6	0.0	2.9	3.2	6.6	11.0	4.3	7.4
Cycle Q Clear(g_c), s	10.0	4.0	3.5	7.9	2.6	0.0	2.9	3.2	6.6	11.0	4.3	7.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	562	627	279	502	562		392	668	298	554	1045	466
V/C Ratio(X)	0.60	0.40	0.35	0.54	0.29		0.26	0.31	0.60	0.82	0.30	0.48
Avail Cap(c_a), veh/h	562	1051	468	535	1051		581	1605	716	554	1605	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.9	23.4	23.2	18.0	23.8	0.0	19.0	22.5	23.9	17.7	17.5	18.6
Incr Delay (d2), s/veh	1.3	0.4	0.8	0.4	0.3	0.0	0.1	0.6	4.1	9.2	0.3	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	1.6	1.3	2.9	1.0	0.0	1.1	1.3	2.6	5.9	1.6	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.1	23.8	24.0	18.4	24.1	0.0	19.2	23.1	28.0	26.9	17.9	20.3
LnGrp LOS	B	C	C	B	C		B	C	C	C	B	C
Approach Vol, veh/h		685			430			489			990	
Approach Delay, s/veh		21.5			20.5			24.0			22.6	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	18.1	13.8	17.3	8.2	24.9	15.0	16.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	8.6	9.9	6.0	4.9	9.4	12.0	4.6				
Green Ext Time (p_c), s	0.0	3.4	0.0	1.5	0.0	4.8	0.0	0.7				















Intersection Summary

HCM 6th Ctrl Delay	22.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	  		 	 	
Traffic Volume (vph)	425	335	465	20	120
Future Volume (vph)	425	335	465	20	120
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	2		1	6
Permitted Phases			2	6	
Detector Phase	8	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	24.0	11.0	24.0
Total Split (s)	24.0	25.0	25.0	11.0	36.0
Total Split (%)	40.0%	41.7%	41.7%	18.3%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min

Intersection Summary





Cycle Length: 60






Actuated Cycle Length: 40.6

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Pine Dr & Inspiration Dr












 Ø1	 Ø2	
11 s	25 s	
 Ø6		 Ø8
36 s		24 s

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	484	364	505	22	130
v/c Ratio	0.51	0.53	0.56	0.05	0.17
Control Delay	15.3	14.6	4.3	7.3	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.3	14.6	4.3	7.3	8.1
Queue Length 50th (ft)	41	53	0	3	17
Queue Length 95th (ft)	109	183	57	12	46
Internal Link Dist (ft)	290	473			411
Turn Bay Length (ft)					
Base Capacity (vph)	1610	922	1039	412	1450
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.30	0.39	0.49	0.05	0.09
Intersection Summary					

HCM 6th Signalized Intersection Summary

11/18/2022

2: Pine Dr & Inspiration Dr
2027 Background with Pine Ext - PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	425	20	335	465	20	120
Future Volume (veh/h)	425	20	335	465	20	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	483	0	364	505	22	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	711	316	698	591	349	998
Arrive On Green	0.20	0.00	0.37	0.37	0.03	0.53
Sat Flow, veh/h	3563	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	483	0	364	505	22	130
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	5.6	0.0	6.8	13.2	0.3	1.6
Cycle Q Clear(g_c), s	5.6	0.0	6.8	13.2	0.3	1.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	711	316	698	591	349	998
V/C Ratio(X)	0.68	0.00	0.52	0.85	0.06	0.13
Avail Cap(c_a), veh/h	1427	635	791	670	500	1248
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	0.0	11.0	13.0	7.9	5.3
Incr Delay (d2), s/veh	1.1	0.0	0.6	9.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	2.4	5.2	0.1	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.8	0.0	11.6	22.5	8.0	5.3
LnGrp LOS	B	A	B	C	A	A
Approach Vol, veh/h	483		869			152
Approach Delay, s/veh	17.8		17.9			5.7
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.2	22.8			30.0	15.0
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	5.0	19.0			30.0	18.0
Max Q Clear Time (g_c+I1), s	2.3	15.2			3.6	7.6
Green Ext Time (p_c), s	0.0	1.6			0.7	1.4

Intersection Summary

























HCM 6th Ctrl Delay	16.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Timings
11/18/2022

3: SH-83/Parker Rd & Aurora Pkwy
2027 Background with Pine Ext - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	5	40	150	5	165	25	2250	305	195	2060	50
Future Volume (vph)	35	5	40	150	5	165	25	2250	305	195	2060	50
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4	8					2			6
Detector Phase	7	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	2.0	8.0	8.0	6.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	64.0	64.0	29.0	82.0	82.0
Total Split (%)	5.8%	13.3%	13.3%	9.2%	16.7%		9.2%	53.3%	53.3%	24.2%	68.3%	68.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 120









Actuated Cycle Length: 120













Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

			
Ø1	Ø2 (R)	Ø3	Ø4
29 s	64 s	11 s	16 s
			
Ø5	Ø6 (R)	Ø7	Ø8
11 s	82 s	7 s	20 s

























												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	38	5	43	163	5	179	27	2446	332	212	2239	54
v/c Ratio	0.32	0.04	0.16	0.47	0.02	0.25	0.28	0.80	0.31	0.58	0.64	0.05
Control Delay	52.2	51.8	1.3	48.8	48.0	35.5	62.4	22.1	2.2	57.4	12.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.2	51.8	1.3	48.8	48.0	35.5	62.4	22.1	2.2	57.4	12.7	0.1
Queue Length 50th (ft)	25	4	0	57	4	63	20	518	0	81	383	0
Queue Length 95th (ft)	57	17	0	88	16	93	52	660	42	119	445	0
Internal Link Dist (ft)	328			3611			3398			668		
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	120	155	285	346	232	938	95	3063	1085	686	3515	1130
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.03	0.15	0.47	0.02	0.19	0.28	0.80	0.31	0.31	0.64	0.05
Intersection Summary												

HCM 6th Signalized Intersection Summary

11/18/2022

3: SH-83/Parker Rd & Aurora Pkwy

2027 Background with Pine Ext - PM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	5	40	150	5	165	25	2250	305	195	2060	50
Future Volume (veh/h)	35	5	40	150	5	165	25	2250	305	195	2060	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	5	43	163	5	179	27	2446	332	212	2239	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	170	125	106	462	187	505	53	3139	974	280	3402	1056
Arrive On Green	0.02	0.07	0.07	0.05	0.10	0.10	0.03	0.61	0.61	0.08	0.67	0.67
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	38	5	43	163	5	179	27	2446	332	212	2239	54
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	2.0	0.3	3.1	5.2	0.3	6.7	1.8	42.5	12.3	7.2	31.3	1.4
Cycle Q Clear(g_c), s	2.0	0.3	3.1	5.2	0.3	6.7	1.8	42.5	12.3	7.2	31.3	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	170	125	106	462	187	505	53	3139	974	280	3402	1056
V/C Ratio(X)	0.22	0.04	0.41	0.35	0.03	0.35	0.51	0.78	0.34	0.76	0.66	0.05
Avail Cap(c_a), veh/h	170	156	132	462	218	552	89	3139	974	691	3402	1056
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	52.4	53.7	48.2	48.7	43.0	57.4	17.1	11.3	54.0	11.9	6.9
Incr Delay (d2), s/veh	0.7	0.1	2.5	0.5	0.1	0.4	7.4	2.0	1.0	4.1	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.1	1.3	2.3	0.1	2.4	0.9	16.2	4.4	3.2	9.8	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	52.5	56.2	48.7	48.8	43.4	64.8	19.1	12.2	58.1	12.9	7.0
LnGrp LOS	D	D	E	D	D	D	E	B	B	E	B	A
Approach Vol, veh/h	86			347			2805			2505		
Approach Delay, s/veh	54.2			46.0			18.7			16.6		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.7	80.3	11.0	14.0	8.6	86.4	7.0	18.0				
Change Period (Y+Rc), s	5.0	6.5	5.0	6.0	5.0	6.5	5.0	6.0				
Max Green Setting (Gmax), s	24.0	57.5	6.0	10.0	6.0	75.5	2.0	14.0				
Max Q Clear Time (g_c+I1), s	9.2	44.5	7.2	5.1	3.8	33.3	4.0	8.7				
Green Ext Time (p_c), s	0.5	11.9	0.0	0.0	0.0	24.8	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	20.0
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	580	10	15	300	10	10	25	10	10	30	15
Future Vol, veh/h	10	580	10	15	300	10	10	25	10	10	30	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	630	11	16	326	11	11	27	11	11	33	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	337	0	0	641	0	0	870	1027	321	715	1027	169
Stage 1	-	-	-	-	-	-	658	658	-	364	364	-
Stage 2	-	-	-	-	-	-	212	369	-	351	663	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1219	-	-	939	-	-	246	233	675	318	233	845
Stage 1	-	-	-	-	-	-	420	459	-	627	622	-
Stage 2	-	-	-	-	-	-	770	619	-	639	457	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1219	-	-	939	-	-	211	227	675	279	227	845
Mov Cap-2 Maneuver	-	-	-	-	-	-	211	227	-	279	227	-
Stage 1	-	-	-	-	-	-	416	455	-	621	611	-
Stage 2	-	-	-	-	-	-	703	608	-	586	453	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.4	21.9	20.2
HCM LOS			C	C

























Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	261	1219	-	-	939	-	-	296
HCM Lane V/C Ratio	0.187	0.009	-	-	0.017	-	-	0.202
HCM Control Delay (s)	21.9	8	-	-	8.9	-	-	20.2
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.7

Intersection						
Intersection Delay, s/veh	4.1					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		1	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	524		266		10	
Demand Flow Rate, veh/h	534		271		10	
Vehicles Circulating, veh/h	5		116		532	
Vehicles Exiting, veh/h	343		426		7	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	4.3		3.8		4.1	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.469	0.531	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	251	283	127	144	10	72
Cap Entry Lane, veh/h	1344	1414	1213	1287	903	1123
Entry HV Adj Factor	0.981	0.981	0.984	0.978	1.000	0.986
Flow Entry, veh/h	246	278	125	141	10	71
Cap Entry, veh/h	1318	1387	1193	1259	903	1108
V/C Ratio	0.187	0.200	0.105	0.112	0.011	0.064
Control Delay, s/veh	4.3	4.2	3.9	3.8	4.1	3.8
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	0	0	0	0

Intersection Capacity Worksheets:
2040 Background
No Pine Drive
Extension

Timings
11/15/2022

1: Gartrell Rd & Aurora Pkwy
2040 Background - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	105	80	280	280	520	85	375	200	145	275	125
Future Volume (vph)	220	105	80	280	280	520	85	375	200	145	275	125
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	23.9	15.2	15.2	28.5	15.4	15.4	24.4	16.1	16.1	28.5	19.9	19.9
Actuated g/C Ratio	0.34	0.22	0.22	0.41	0.22	0.22	0.35	0.23	0.23	0.41	0.29	0.29
v/c Ratio	0.52	0.15	0.20	0.54	0.39	0.83	0.21	0.50	0.41	0.37	0.30	0.25

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 69.8

Natural Cycle: 105

Control Type: Actuated-Uncoordinated









Maximum v/c Ratio: 0.83













Intersection Signal Delay: 19.0

Intersection Capacity Utilization 68.2%

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	239	114	87	301	301	559	92	408	217	158	299	136
v/c Ratio	0.52	0.15	0.20	0.54	0.39	0.83	0.21	0.50	0.41	0.37	0.30	0.25
Control Delay	18.8	24.2	2.9	18.6	25.9	19.5	14.1	26.5	6.4	15.7	22.2	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	24.2	2.9	18.6	25.9	19.5	14.1	26.5	6.4	15.7	22.2	5.8
Queue Length 50th (ft)	62	21	0	82	59	50	25	86	0	45	58	0
Queue Length 95th (ft)	133	46	15	169	107	#244	52	134	50	82	95	39
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	501	992	533	567	992	744	553	1514	801	488	1514	755
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.11	0.16	0.53	0.30	0.75	0.17	0.27	0.27	0.32	0.20	0.18

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/15/2022

1: Gartrell Rd & Aurora Pkwy
2040 Background - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	105	80	280	280	520	85	375	200	145	275	125
Future Volume (veh/h)	220	105	80	280	280	520	85	375	200	145	275	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	239	114	87	301	301	0	92	408	217	158	299	136
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	494	589	262	579	691		426	885	395	401	1009	450
Arrive On Green	0.14	0.17	0.17	0.17	0.19	0.00	0.06	0.25	0.25	0.09	0.28	0.28
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	239	114	87	301	301	0	92	408	217	158	299	136
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.6	1.7	3.0	8.3	4.6	0.0	2.3	6.0	7.3	3.9	4.0	4.1
Cycle Q Clear(g_c), s	6.6	1.7	3.0	8.3	4.6	0.0	2.3	6.0	7.3	3.9	4.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	494	589	262	579	691		426	885	395	401	1009	450
V/C Ratio(X)	0.48	0.19	0.33	0.52	0.44		0.22	0.46	0.55	0.39	0.30	0.30
Avail Cap(c_a), veh/h	567	1102	491	600	1102		645	1683	750	559	1683	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	22.0	22.6	16.4	21.7	0.0	15.6	19.5	20.0	14.9	17.1	17.2
Incr Delay (d2), s/veh	0.3	0.2	0.7	0.3	0.4	0.0	0.1	0.8	2.5	0.2	0.3	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.7	1.1	3.0	1.8	0.0	0.8	2.3	2.7	1.3	1.5	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.5	22.2	23.3	16.7	22.1	0.0	15.7	20.3	22.5	15.2	17.5	18.0
LnGrp LOS	B	C	C	B	C		B	C	C	B	B	B
Approach Vol, veh/h		440			602			717			593	
Approach Delay, s/veh		19.8			19.4			20.4			17.0	
Approach LOS		B			B			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	21.3	14.3	16.2	7.4	23.4	12.5	17.9				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	5.9	9.3	10.3	5.0	4.3	6.1	8.6	6.6				
Green Ext Time (p_c), s	0.1	6.0	0.0	0.7	0.0	4.2	0.1	1.4				

Intersection Summary

HCM 6th Ctrl Delay 19.2

HCM 6th LOS B




Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

Int Delay, s/veh 0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1005	0	0	455	0	5
Future Vol, veh/h	1005	0	0	455	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1129	0	0	607	0	13

























Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 304 607
Stage 1	-	- 0 0
Stage 2	-	- 304 607
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 688 411
Stage 1	-	- - -
Stage 2	-	- 748 486
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	-	- 688 0
Mov Cap-2 Maneuver	-	- 688 0
Stage 1	-	- - 0
Stage 2	-	- 748 0

Approach	NB	SB
HCM Control Delay, s	0	
HCM LOS		-

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-

Timings
11/15/2022









3: SH-83/Parker Rd & Aurora Pkwy
2040 Background - AM Peak Hour













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	5	30	395	5	405	35	2685	205	220	2365	35
Future Volume (vph)	30	5	30	395	5	405	35	2685	205	220	2365	35
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4	8					2			6
Detector Phase	7	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	2.0	8.0	8.0	6.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	64.0	64.0	29.0	82.0	82.0
Total Split (%)	5.8%	13.3%	13.3%	9.2%	16.7%		9.2%	53.3%	53.3%	24.2%	68.3%	68.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	8.6	9.2	9.2	20.1	15.5	34.5	6.2	68.8	68.8	14.0	81.2	81.2
Actuated g/C Ratio	0.07	0.08	0.08	0.17	0.13	0.29	0.05	0.57	0.57	0.12	0.68	0.68
v/c Ratio	0.31	0.03	0.12	1.00	0.02	0.55	0.42	1.00	0.22	0.60	0.75	0.03

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 34.8
 Intersection Capacity Utilization 90.7%
 Analysis Period (min) 15

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

 Ø1	 Ø2 (R)	 Ø3	 Ø4
29 s	64 s	11 s	16 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
11 s	82 s	7 s	20 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	33	5	33	429	5	440	38	2918	223	239	2571	38
v/c Ratio	0.31	0.03	0.12	1.00	0.02	0.55	0.42	1.00	0.22	0.60	0.75	0.03
Control Delay	53.1	51.2	0.9	93.3	47.4	38.9	69.7	43.3	2.4	56.2	15.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	51.2	0.9	93.3	47.4	38.9	69.7	43.3	2.4	56.2	15.6	0.1
Queue Length 50th (ft)	22	4	0	~194	4	167	29	~835	0	92	509	0
Queue Length 95th (ft)	51	17	0	#311	16	214	67	#1019	37	129	575	0
Internal Link Dist (ft)		328			3611			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	106	155	285	428	240	1033	90	2914	1002	686	3440	1109
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.03	0.12	1.00	0.02	0.43	0.42	1.00	0.22	0.35	0.75	0.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

























Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/15/2022

3: SH-83/Parker Rd & Aurora Pkwy

2040 Background - AM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	5	30	395	5	405	35	2685	205	220	2365	35
Future Volume (veh/h)	30	5	30	395	5	405	35	2685	205	220	2365	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	5	33	429	5	440	38	2918	223	239	2571	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	156	132	508	218	575	64	3012	935	309	3285	1020
Arrive On Green	0.02	0.08	0.08	0.05	0.12	0.12	0.04	0.59	0.59	0.09	0.64	0.64
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	33	5	33	429	5	440	38	2918	223	239	2571	38
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	2.0	0.3	2.3	6.0	0.3	14.0	2.5	65.6	8.1	8.1	43.4	1.1
Cycle Q Clear(g_c), s	2.0	0.3	2.3	6.0	0.3	14.0	2.5	65.6	8.1	8.1	43.4	1.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	168	156	132	508	218	575	64	3012	935	309	3285	1020
V/C Ratio(X)	0.20	0.03	0.25	0.85	0.02	0.77	0.59	0.97	0.24	0.77	0.78	0.04
Avail Cap(c_a), veh/h	168	156	132	508	218	575	89	3012	935	691	3285	1020
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	50.6	51.5	51.9	46.9	44.9	57.0	23.6	11.7	53.5	15.4	7.8
Incr Delay (d2), s/veh	0.6	0.1	1.0	12.4	0.0	6.1	8.5	10.6	0.6	4.1	1.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.1	1.0	4.5	0.1	6.6	1.3	27.5	3.0	3.6	14.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.1	50.6	52.5	64.4	47.0	51.0	65.5	34.2	12.4	57.6	17.3	7.9
LnGrp LOS	D	D	D	E	D	D	E	C	B	E	B	A
Approach Vol, veh/h	71			874			3179			2848		
Approach Delay, s/veh	51.2			57.5			33.0			20.6		
Approach LOS	D			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.7	77.3	11.0	16.0	9.3	83.7	7.0	20.0				
Change Period (Y+Rc), s	5.0	6.5	5.0	6.0	5.0	6.5	5.0	6.0				
Max Green Setting (Gmax), s	24.0	57.5	6.0	10.0	6.0	75.5	2.0	14.0				
Max Q Clear Time (g_c+I1), s	10.1	67.6	8.0	4.3	4.5	45.4	4.0	16.0				
Green Ext Time (p_c), s	0.6	0.0	0.0	0.0	0.0	23.3	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	31.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	265	10	15	400	10	10	30	20	10	35	20
Future Vol, veh/h	10	265	10	15	400	10	10	30	20	10	35	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	288	11	16	435	11	11	33	22	11	38	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	446	0	0	299	0	0	585	794	150	656	794	223
Stage 1	-	-	-	-	-	-	316	316	-	473	473	-
Stage 2	-	-	-	-	-	-	269	478	-	183	321	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1111	-	-	1259	-	-	394	319	870	351	319	780
Stage 1	-	-	-	-	-	-	670	654	-	541	557	-
Stage 2	-	-	-	-	-	-	713	554	-	801	650	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1111	-	-	1259	-	-	341	312	870	310	312	780
Mov Cap-2 Maneuver	-	-	-	-	-	-	341	312	-	310	312	-
Stage 1	-	-	-	-	-	-	663	647	-	536	550	-
Stage 2	-	-	-	-	-	-	637	547	-	734	644	-

























Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.3	15.6	16.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	404	1111	-	-	1259	-	-	382
HCM Lane V/C Ratio	0.161	0.01	-	-	0.013	-	-	0.185
HCM Control Delay (s)	15.6	8.3	-	-	7.9	-	-	16.6
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.7

Intersection						
Intersection Delay, s/veh	5.6					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	472		510		15	347
Demand Flow Rate, veh/h	481		520		15	354
Vehicles Circulating, veh/h	10		181		475	520
Vehicles Exiting, veh/h	864		309		16	181
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	4.1		5.1		4.0	8.5
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.469	0.531	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	226	255	244	276	15	354
Cap Entry Lane, veh/h	1337	1408	1143	1218	948	913
Entry HV Adj Factor	0.982	0.981	0.982	0.979	0.993	0.980
Flow Entry, veh/h	222	250	240	270	15	347
Cap Entry, veh/h	1313	1382	1123	1192	942	895
V/C Ratio	0.169	0.181	0.214	0.227	0.016	0.388
Control Delay, s/veh	4.1	4.1	5.1	5.0	4.0	8.5
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	0	2

Timings
11/15/2022

1: Gartrell Rd & Aurora Pkwy
2040 Background - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	235	135	275	185	270	110	360	320	435	400	80
Future Volume (vph)	195	235	135	275	185	270	110	360	320	435	400	80
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	22.5	11.4	11.4	24.5	12.4	12.4	24.9	16.2	16.2	32.8	22.5	22.5
Actuated g/C Ratio	0.33	0.17	0.17	0.36	0.18	0.18	0.36	0.23	0.23	0.48	0.33	0.33
v/c Ratio	0.46	0.44	0.39	0.63	0.31	0.56	0.29	0.47	0.55	0.91	0.38	0.14

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 69

Natural Cycle: 105

Control Type: Actuated-Uncoordinated









Maximum v/c Ratio: 0.91













Intersection Signal Delay: 21.2

Intersection Capacity Utilization 74.9%

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	212	255	147	296	199	290	120	391	348	473	435	87
v/c Ratio	0.46	0.44	0.39	0.63	0.31	0.56	0.29	0.47	0.55	0.91	0.38	0.14
Control Delay	18.6	29.3	8.7	22.9	27.3	8.5	12.7	24.9	6.4	40.1	20.6	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	29.3	8.7	22.9	27.3	8.5	12.7	24.9	6.4	40.1	20.6	2.1
Queue Length 50th (ft)	59	52	0	88	39	0	26	74	0	131	75	0
Queue Length 95th (ft)	120	93	46	168	75	62	60	122	60	#358	132	14
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	512	985	541	494	985	644	530	1503	872	520	1503	748
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.26	0.27	0.60	0.20	0.45	0.23	0.26	0.40	0.91	0.29	0.12

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/15/2022

1: Gartrell Rd & Aurora Pkwy
2040 Background - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	235	135	275	185	270	110	360	320	435	400	80
Future Volume (veh/h)	195	235	135	275	185	270	110	360	320	435	400	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	255	147	296	199	0	120	391	348	473	435	87
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	452	490	218	431	571		472	1051	469	512	1339	597
Arrive On Green	0.13	0.14	0.14	0.15	0.16	0.00	0.07	0.30	0.30	0.15	0.38	0.38
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	212	255	147	296	199	0	120	391	348	473	435	87
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	7.4	4.9	6.6	10.6	3.7	0.0	3.4	6.5	14.7	11.0	6.4	2.7
Cycle Q Clear(g_c), s	7.4	4.9	6.6	10.6	3.7	0.0	3.4	6.5	14.7	11.0	6.4	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	452	490	218	431	571		472	1051	469	512	1339	597
V/C Ratio(X)	0.47	0.52	0.67	0.69	0.35		0.25	0.37	0.74	0.92	0.32	0.15
Avail Cap(c_a), veh/h	492	910	405	431	910		616	1390	620	512	1390	620
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	29.7	30.4	22.9	27.7	0.0	16.1	20.7	23.6	18.2	16.4	15.2
Incr Delay (d2), s/veh	0.3	0.9	3.6	3.8	0.4	0.0	0.1	0.5	5.6	22.4	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	2.1	2.6	4.5	1.5	0.0	1.3	2.5	5.8	7.9	2.4	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.2	30.6	34.0	26.7	28.0	0.0	16.2	21.1	29.1	40.6	16.7	15.5
LnGrp LOS	C	C	C	C	C		B	C	C	D	B	B
Approach Vol, veh/h		614			495			859			995	
Approach Delay, s/veh		28.8			27.2			23.7			27.9	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	27.9	15.0	16.2	9.0	34.0	13.3	17.9				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	16.7	12.6	8.6	5.4	8.4	9.4	5.7				
Green Ext Time (p_c), s	0.0	5.3	0.0	1.5	0.0	5.2	0.0	0.9				




Intersection Summary

HCM 6th Ctrl Delay 26.8
HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	625	0	5	900	5	5
Future Vol, veh/h	625	0	5	900	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	702	0	7	1200	13	13

























Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 607 1207
Stage 1	-	- 0 0
Stage 2	-	- 607 1207
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 460 183
Stage 1	-	- - -
Stage 2	-	- 544 256
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	-	- 460 0
Mov Cap-2 Maneuver	-	- 460 0
Stage 1	-	- - 0
Stage 2	-	- 544 0

Approach	NB	SB
HCM Control Delay, s	0	13.3
HCM LOS		B

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	460
HCM Lane V/C Ratio	-	-	0.057
HCM Control Delay (s)	-	-	13.3
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.2

Timings
11/15/2022









3: SH-83/Parker Rd & Aurora Pkwy
2040 Background - PM Peak Hour













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	5	45	280	5	305	30	2280	480	355	2960	60
Future Volume (vph)	40	5	45	280	5	305	30	2280	480	355	2960	60
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4	8					2			6
Detector Phase	7	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	2.0	8.0	8.0	6.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	64.0	64.0	29.0	82.0	82.0
Total Split (%)	5.8%	13.3%	13.3%	9.2%	16.7%		9.2%	53.3%	53.3%	24.2%	68.3%	68.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	10.8	9.6	9.6	19.5	13.7	37.9	6.0	64.0	64.0	19.2	81.6	81.6
Actuated g/C Ratio	0.09	0.08	0.08	0.16	0.11	0.32	0.05	0.53	0.53	0.16	0.68	0.68
v/c Ratio	0.33	0.03	0.17	0.79	0.02	0.38	0.38	0.91	0.50	0.70	0.93	0.06

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 29.5
 Intersection Capacity Utilization 91.4%
 Analysis Period (min) 15

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

 Ø1	 Ø2 (R)	 Ø3	 Ø4
29 s	64 s	11 s	16 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
11 s	82 s	7 s	20 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	43	5	49	304	5	332	33	2478	522	386	3217	65
v/c Ratio	0.33	0.03	0.17	0.79	0.02	0.38	0.38	0.91	0.50	0.70	0.93	0.06
Control Delay	51.6	51.2	1.4	62.3	47.4	32.6	67.6	32.9	4.9	54.7	24.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	51.2	1.4	62.3	47.4	32.6	67.6	32.9	4.9	54.7	24.7	0.2
Queue Length 50th (ft)	28	4	0	109	4	111	25	640	28	146	~871	0
Queue Length 95th (ft)	62	17	0	#171	16	148	60	#835	107	191	#1036	2
Internal Link Dist (ft)		328			3611			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	132	155	285	383	217	970	88	2712	1053	686	3457	1113
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.03	0.17	0.79	0.02	0.34	0.38	0.91	0.50	0.56	0.93	0.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

























Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/15/2022

3: SH-83/Parker Rd & Aurora Pkwy

2040 Background - PM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	45	280	5	305	30	2280	480	355	2960	60
Future Volume (veh/h)	40	5	45	280	5	305	30	2280	480	355	2960	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	49	304	5	332	33	2478	522	386	3217	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	177	156	132	505	218	697	59	2788	866	460	3298	1024
Arrive On Green	0.02	0.08	0.08	0.05	0.12	0.12	0.03	0.55	0.55	0.13	0.65	0.65
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	43	5	49	304	5	332	33	2478	522	386	3217	65
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	2.0	0.3	3.5	6.0	0.3	12.2	2.2	51.4	26.7	13.1	72.4	1.8
Cycle Q Clear(g_c), s	2.0	0.3	3.5	6.0	0.3	12.2	2.2	51.4	26.7	13.1	72.4	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	177	156	132	505	218	697	59	2788	866	460	3298	1024
V/C Ratio(X)	0.24	0.03	0.37	0.60	0.02	0.48	0.56	0.89	0.60	0.84	0.98	0.06
Avail Cap(c_a), veh/h	177	156	132	505	218	697	89	2788	866	691	3298	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.9	50.6	52.0	49.2	46.9	38.3	57.1	24.0	18.4	50.8	20.3	7.8
Incr Delay (d2), s/veh	0.7	0.1	1.7	2.0	0.0	0.5	7.9	4.7	3.1	5.8	10.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.1	1.5	1.7	0.1	4.2	1.1	20.9	10.3	5.8	26.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	50.6	53.8	51.2	47.0	38.8	65.0	28.7	21.5	56.6	31.3	8.0
LnGrp LOS	D	D	D	D	D	D	E	C	C	E	C	A
Approach Vol, veh/h	97				641				3033			
Approach Delay, s/veh	52.2				44.8				27.9			
Approach LOS	D				D				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	72.0	11.0	16.0	9.0	84.0	7.0	20.0				
Change Period (Y+Rc), s	5.0	6.5	5.0	6.0	5.0	6.5	5.0	6.0				
Max Green Setting (Gmax), s	24.0	57.5	6.0	10.0	6.0	75.5	2.0	14.0				
Max Q Clear Time (g_c+I1), s	15.1	53.4	8.0	5.5	4.2	74.4	4.0	14.2				
Green Ext Time (p_c), s	0.9	4.0	0.0	0.0	0.0	1.1	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	295	10	20	185	10	10	40	15	10	35	15
Future Vol, veh/h	10	295	10	20	185	10	10	40	15	10	35	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	321	11	22	201	11	11	43	16	11	38	16

























Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	212	0	0	332	0	0	513	605	166	455	605	106
Stage 1	-	-	-	-	-	-	349	349	-	251	251	-
Stage 2	-	-	-	-	-	-	164	256	-	204	354	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1356	-	-	1224	-	-	444	410	849	489	410	928
Stage 1	-	-	-	-	-	-	640	632	-	731	698	-
Stage 2	-	-	-	-	-	-	822	694	-	779	629	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1356	-	-	1224	-	-	396	399	849	431	399	928
Mov Cap-2 Maneuver	-	-	-	-	-	-	396	399	-	431	399	-
Stage 1	-	-	-	-	-	-	635	627	-	725	685	-
Stage 2	-	-	-	-	-	-	749	682	-	705	624	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.7	14.4	13.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	454	1356	-	-	1224	-	-	472
HCM Lane V/C Ratio	0.156	0.008	-	-	0.018	-	-	0.138
HCM Control Delay (s)	14.4	7.7	-	-	8	-	-	13.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.5

Intersection						
Intersection Delay, s/veh	5.5					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	793		271		16	320
Demand Flow Rate, veh/h	808		276		16	326
Vehicles Circulating, veh/h	15		443		808	282
Vehicles Exiting, veh/h	593		381		15	437
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	5.3		5.3		5.3	6.1
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	L	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.535	0.465	0.471	0.529	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	432	376	130	146	16	326
Cap Entry Lane, veh/h	1331	1402	898	974	715	1117
Entry HV Adj Factor	0.981	0.981	0.979	0.983	1.000	0.981
Flow Entry, veh/h	424	369	127	144	16	320
Cap Entry, veh/h	1307	1375	879	958	715	1096
V/C Ratio	0.324	0.268	0.145	0.150	0.022	0.292
Control Delay, s/veh	5.7	4.9	5.5	5.2	5.3	6.1
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	0	1

Intersection Capacity Worksheets:
2040 Background
WITH Pine Drive
Extension

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	350	165	90	280	280	520	90	270	140	145	105	330
Future Volume (vph)	350	165	90	280	280	520	90	270	140	145	105	330
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

Intersection Summary









Cycle Length: 90













Actuated Cycle Length: 67.2

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	380	179	98	301	301	559	98	293	152	158	114	359
v/c Ratio	0.69	0.21	0.21	0.55	0.39	0.80	0.21	0.42	0.35	0.35	0.13	0.54
Control Delay	21.9	22.6	3.5	16.7	24.6	15.6	14.7	26.6	7.5	16.0	22.6	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	22.6	3.5	16.7	24.6	15.6	14.7	26.6	7.5	16.0	22.6	6.5
Queue Length 50th (ft)	97	31	0	73	55	34	25	56	0	41	20	0
Queue Length 95th (ft)	#213	62	21	150	99	#179	55	100	45	83	43	63
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	554	1017	544	590	1017	775	571	1553	780	506	1553	896
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.18	0.18	0.51	0.30	0.72	0.17	0.19	0.19	0.31	0.07	0.40

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/18/2022

1: Gartrell Rd & Aurora Pkwy
2040 Background with Pine Ext - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	350	165	90	280	280	520	90	270	140	145	105	330
Future Volume (veh/h)	350	165	90	280	280	520	90	270	140	145	105	330
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	380	179	98	301	301	0	98	293	152	158	114	359
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	512	592	264	547	570		458	924	412	456	1034	461
Arrive On Green	0.17	0.17	0.17	0.17	0.16	0.00	0.06	0.26	0.26	0.09	0.29	0.29
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	380	179	98	301	301	0	98	293	152	158	114	359
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	11.0	2.8	3.5	8.6	4.9	0.0	2.5	4.2	5.0	4.0	1.5	13.1
Cycle Q Clear(g_c), s	11.0	2.8	3.5	8.6	4.9	0.0	2.5	4.2	5.0	4.0	1.5	13.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	512	592	264	547	570		458	924	412	456	1034	461
V/C Ratio(X)	0.74	0.30	0.37	0.55	0.53		0.21	0.32	0.37	0.35	0.11	0.78
Avail Cap(c_a), veh/h	512	1067	475	558	1067		663	1628	726	606	1628	726
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.3	23.1	23.4	17.3	24.4	0.0	15.5	18.9	19.2	14.9	16.4	20.6
Incr Delay (d2), s/veh	5.1	0.3	0.9	0.6	0.8	0.0	0.1	0.4	1.2	0.2	0.1	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	1.1	1.3	3.2	2.0	0.0	0.9	1.6	1.8	1.4	0.5	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	23.4	24.3	17.9	25.1	0.0	15.6	19.3	20.3	15.0	16.5	26.6
LnGrp LOS	C	C	C	B	C		B	B	C	B	B	C
Approach Vol, veh/h		657			602			543			631	
Approach Delay, s/veh		23.5			21.5			18.9			21.9	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	22.5	14.6	16.6	7.7	24.4	15.0	16.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	6.0	7.0	10.6	5.5	4.5	15.1	13.0	6.9				
Green Ext Time (p_c), s	0.1	4.3	0.0	1.1	0.0	3.3	0.0	1.4				















Intersection Summary

HCM 6th Ctrl Delay 21.6
HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	  		 	 	
Traffic Volume (vph)	805	175	275	30	185
Future Volume (vph)	805	175	275	30	185
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	3	2		1	6
Permitted Phases			2	6	
Detector Phase	3	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	11.0	24.0	24.0	11.0	24.0
Total Split (s)	25.0	24.0	24.0	11.0	35.0
Total Split (%)	41.7%	40.0%	40.0%	18.3%	58.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min

Intersection Summary





Cycle Length: 60






Actuated Cycle Length: 44.6

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Pine Dr & Inspiration Dr

 Ø1	 Ø2	 Ø3
11 s	24 s	25 s
 Ø6		
35 s		

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	897	190	299	33	201
v/c Ratio	0.72	0.37	0.46	0.08	0.31
Control Delay	18.3	17.4	5.2	9.4	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	17.4	5.2	9.4	11.5
Queue Length 50th (ft)	70	33	0	5	35
Queue Length 95th (ft)	#242	100	47	17	73
Internal Link Dist (ft)	290	473			411
Turn Bay Length (ft)					
Base Capacity (vph)	1547	795	846	397	1280
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.58	0.24	0.35	0.08	0.16












Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/18/2022

2: Pine Dr & Inspiration Dr
2040 Background with Pine Ext - AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	805	20	175	275	30	185
Future Volume (veh/h)	805	20	175	275	30	185
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	896	0	190	299	33	201
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1138	506	466	395	373	782
Arrive On Green	0.32	0.00	0.25	0.25	0.04	0.42
Sat Flow, veh/h	3563	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	896	0	190	299	33	201
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	10.4	0.0	3.9	8.0	0.6	3.2
Cycle Q Clear(g_c), s	10.4	0.0	3.9	8.0	0.6	3.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1138	506	466	395	373	782
V/C Ratio(X)	0.79	0.00	0.41	0.76	0.09	0.26
Avail Cap(c_a), veh/h	1483	660	737	625	502	1188
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.1	0.0	14.3	15.9	10.8	8.7
Incr Delay (d2), s/veh	2.2	0.0	0.6	3.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	1.5	2.8	0.2	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.3	0.0	14.9	18.9	10.9	8.8
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	896		489			234
Approach Delay, s/veh	16.3		17.3			9.1
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.7	17.4			25.1	20.6
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	5.0	18.0			29.0	19.0
Max Q Clear Time (g_c+I1), s	2.6	10.0			5.2	12.4
Green Ext Time (p_c), s	0.0	1.4			1.1	2.1

Intersection Summary

























HCM 6th Ctrl Delay	15.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Timings
11/18/2022

3: SH-83/Parker Rd & Aurora Pkwy
2040 Background with Pine Ext - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	5	30	430	5	415	35	2685	215	220	2365	35
Future Volume (vph)	30	5	30	430	5	415	35	2685	215	220	2365	35
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4	8					2			6
Detector Phase	7	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	2.0	8.0	8.0	6.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	64.0	64.0	29.0	82.0	82.0
Total Split (%)	5.8%	13.3%	13.3%	9.2%	16.7%		9.2%	53.3%	53.3%	24.2%	68.3%	68.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 120









Actuated Cycle Length: 120













Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

			
Ø1	Ø2 (R)	Ø3	Ø4
29 s	64 s	11 s	16 s
			
Ø5	Ø6 (R)	Ø7	Ø8
11 s	82 s	7 s	20 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	33	5	33	467	5	451	38	2918	234	239	2571	38
v/c Ratio	0.31	0.03	0.12	1.08	0.02	0.56	0.42	1.00	0.23	0.60	0.75	0.03
Control Delay	53.1	51.2	0.9	112.7	47.4	39.1	69.7	43.9	2.4	56.2	15.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	51.2	0.9	112.7	47.4	39.1	69.7	43.9	2.4	56.2	15.7	0.1
Queue Length 50th (ft)	22	4	0	~228	4	172	29	~835	0	92	509	0
Queue Length 95th (ft)	51	17	0	#346	16	220	67	#1019	38	129	575	0
Internal Link Dist (ft)		328			3611			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	106	155	285	433	242	1036	90	2908	1005	686	3434	1107
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.03	0.12	1.08	0.02	0.44	0.42	1.00	0.23	0.35	0.75	0.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

























Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/18/2022

3: SH-83/Parker Rd & Aurora Pkwy

2040 Background with Pine Ext - AM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	5	30	430	5	415	35	2685	215	220	2365	35
Future Volume (veh/h)	30	5	30	430	5	415	35	2685	215	220	2365	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	5	33	467	5	451	38	2918	234	239	2571	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	156	132	508	218	575	64	3012	935	309	3285	1020
Arrive On Green	0.02	0.08	0.08	0.05	0.12	0.12	0.04	0.59	0.59	0.09	0.64	0.64
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	33	5	33	467	5	451	38	2918	234	239	2571	38
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	2.0	0.3	2.3	6.0	0.3	14.0	2.5	65.6	8.5	8.1	43.4	1.1
Cycle Q Clear(g_c), s	2.0	0.3	2.3	6.0	0.3	14.0	2.5	65.6	8.5	8.1	43.4	1.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	168	156	132	508	218	575	64	3012	935	309	3285	1020
V/C Ratio(X)	0.20	0.03	0.25	0.92	0.02	0.78	0.59	0.97	0.25	0.77	0.78	0.04
Avail Cap(c_a), veh/h	168	156	132	508	218	575	89	3012	935	691	3285	1020
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	50.6	51.5	52.6	46.9	45.1	57.0	23.6	11.8	53.5	15.4	7.8
Incr Delay (d2), s/veh	0.6	0.1	1.0	22.1	0.0	7.0	8.5	10.6	0.6	4.1	1.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.1	1.0	5.8	0.1	6.9	1.3	27.5	3.1	3.6	14.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.1	50.6	52.5	74.7	47.0	52.2	65.5	34.2	12.5	57.6	17.3	7.9
LnGrp LOS	D	D	D	E	D	D	E	C	B	E	B	A
Approach Vol, veh/h	71			923			3190			2848		
Approach Delay, s/veh	51.2			63.5			32.9			20.6		
Approach LOS	D			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.7	77.3	11.0	16.0	9.3	83.7	7.0	20.0				
Change Period (Y+Rc), s	5.0	6.5	5.0	6.0	5.0	6.5	5.0	6.0				
Max Green Setting (Gmax), s	24.0	57.5	6.0	10.0	6.0	75.5	2.0	14.0				
Max Q Clear Time (g_c+I1), s	10.1	67.6	8.0	4.3	4.5	45.4	4.0	16.0				
Green Ext Time (p_c), s	0.6	0.0	0.0	0.0	0.0	23.3	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	32.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

























Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	430	10	15	590	10	10	30	20	10	35	20
Future Vol, veh/h	10	430	10	15	590	10	10	30	20	10	35	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	467	11	16	641	11	11	33	22	11	38	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	652	0	0	478	0	0	867	1179	239	951	1179	326
Stage 1	-	-	-	-	-	-	495	495	-	679	679	-
Stage 2	-	-	-	-	-	-	372	684	-	272	500	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	930	-	-	1081	-	-	247	189	762	214	189	670
Stage 1	-	-	-	-	-	-	525	544	-	408	449	-
Stage 2	-	-	-	-	-	-	621	447	-	711	541	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	930	-	-	1081	-	-	197	184	762	176	184	670
Mov Cap-2 Maneuver	-	-	-	-	-	-	197	184	-	176	184	-
Stage 1	-	-	-	-	-	-	519	537	-	403	442	-
Stage 2	-	-	-	-	-	-	541	440	-	641	535	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	24.4	26.8
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	250	930	-	-	1081	-	-	235
HCM Lane V/C Ratio	0.261	0.012	-	-	0.015	-	-	0.301
HCM Control Delay (s)	24.4	8.9	-	-	8.4	-	-	26.8
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1	0	-	-	0	-	-	1.2

Intersection						
Intersection Delay, s/veh	5.6					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	472		515		15	347
Demand Flow Rate, veh/h	481		525		15	354
Vehicles Circulating, veh/h	10		181		475	525
Vehicles Exiting, veh/h	869		309		16	181
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	4.1		5.1		4.0	8.5
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.470	0.530	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	226	255	247	278	15	354
Cap Entry Lane, veh/h	1337	1408	1143	1218	948	909
Entry HV Adj Factor	0.982	0.981	0.980	0.982	0.993	0.980
Flow Entry, veh/h	222	250	242	273	15	347
Cap Entry, veh/h	1313	1382	1120	1195	942	891
V/C Ratio	0.169	0.181	0.216	0.228	0.016	0.390
Control Delay, s/veh	4.1	4.1	5.2	5.0	4.0	8.5
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	0	2

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	335	300	140	275	185	270	120	195	170	435	290	215
Future Volume (vph)	335	300	140	275	185	270	120	195	170	435	290	215
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

Intersection Summary









Cycle Length: 90













Actuated Cycle Length: 66.5

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	364	326	152	296	199	290	130	212	185	473	315	234
v/c Ratio	0.68	0.47	0.36	0.61	0.31	0.55	0.31	0.32	0.42	0.90	0.33	0.39
Control Delay	22.2	26.8	7.4	19.6	25.2	8.0	14.3	25.2	7.5	40.0	22.5	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	26.8	7.4	19.6	25.2	8.0	14.3	25.2	7.5	40.0	22.5	5.9
Queue Length 50th (ft)	96	61	0	74	36	0	29	38	0	135	54	0
Queue Length 95th (ft)	192	109	44	153	70	60	67	72	47	#282	102	53
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	544	1019	558	516	1019	656	519	1556	799	527	1556	827
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.32	0.27	0.57	0.20	0.44	0.25	0.14	0.23	0.90	0.20	0.28

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/18/2022

1: Gartrell Rd & Aurora Pkwy
2040 Background with Pine Ext - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	335	300	140	275	185	270	120	195	170	435	290	215
Future Volume (veh/h)	335	300	140	275	185	270	120	195	170	435	290	215
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	364	326	152	296	199	0	130	212	185	473	315	234
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	542	577	257	477	559		419	683	305	554	1003	447
Arrive On Green	0.17	0.16	0.16	0.17	0.16	0.00	0.08	0.19	0.19	0.17	0.28	0.28
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	364	326	152	296	199	0	130	212	185	473	315	234
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	11.0	5.5	5.7	8.7	3.2	0.0	3.7	3.3	6.9	11.0	4.5	8.0
Cycle Q Clear(g_c), s	11.0	5.5	5.7	8.7	3.2	0.0	3.7	3.3	6.9	11.0	4.5	8.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	542	577	257	477	559		419	683	305	554	1003	447
V/C Ratio(X)	0.67	0.56	0.59	0.62	0.36		0.31	0.31	0.61	0.85	0.31	0.52
Avail Cap(c_a), veh/h	542	1046	466	486	1046		580	1596	712	554	1596	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.5	24.9	25.1	18.1	24.3	0.0	18.4	22.4	23.9	18.2	18.3	19.5
Incr Delay (d2), s/veh	2.6	0.9	2.2	1.7	0.4	0.0	0.2	0.5	4.1	11.7	0.4	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	2.2	2.2	3.4	1.3	0.0	1.4	1.3	2.7	6.5	1.7	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	25.8	27.2	19.8	24.7	0.0	18.6	23.0	28.0	29.9	18.6	21.5
LnGrp LOS	C	C	C	B	C		B	C	C	C	B	C
Approach Vol, veh/h		842			495			527			1022	
Approach Delay, s/veh		24.0			21.7			23.6			24.5	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	18.4	14.7	16.5	9.2	24.2	15.0	16.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	8.9	10.7	7.7	5.7	10.0	13.0	5.2				
Green Ext Time (p_c), s	0.0	3.5	0.0	1.9	0.0	4.9	0.0	0.9				















Intersection Summary

HCM 6th Ctrl Delay 23.7
HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	  		 	 	
Traffic Volume (vph)	495	345	540	25	125
Future Volume (vph)	495	345	540	25	125
Turn Type	Prot	NA	pm+ov	pm+pt	NA
Protected Phases	8	2	8	1	6
Permitted Phases			2	6	
Detector Phase	8	2	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	24.0	24.0	24.0	11.0	24.0
Total Split (s)	24.0	25.0	24.0	11.0	36.0
Total Split (%)	40.0%	41.7%	40.0%	18.3%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lag		Lead	
Lead-Lag Optimize?		Yes		Yes	
Recall Mode	None	Min	None	None	Min

Intersection Summary





Cycle Length: 60






Actuated Cycle Length: 44.4

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Pine Dr & Inspiration Dr












 Ø1	 Ø2	
11 s	25 s	
 Ø6		 Ø8
36 s		24 s

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	565	375	587	27	136
v/c Ratio	0.53	0.62	0.40	0.07	0.18
Control Delay	16.0	19.8	1.2	8.3	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	19.8	1.2	8.3	9.1
Queue Length 50th (ft)	45	64	0	4	20
Queue Length 95th (ft)	128	195	20	15	50
Internal Link Dist (ft)	290	473			411
Turn Bay Length (ft)					
Base Capacity (vph)	1514	865	1462	375	1367
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.37	0.43	0.40	0.07	0.10
Intersection Summary					

HCM 6th Signalized Intersection Summary

11/18/2022

2: Pine Dr & Inspiration Dr
2040 Background with Pine Ext - PM Peak Hour

























						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	495	25	345	540	25	125
Future Volume (veh/h)	495	25	345	540	25	125
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	563	0	375	587	27	136
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	797	354	651	906	323	958
Arrive On Green	0.22	0.00	0.35	0.35	0.03	0.51
Sat Flow, veh/h	3563	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	563	0	375	587	27	136
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	6.6	0.0	7.4	11.4	0.4	1.7
Cycle Q Clear(g_c), s	6.6	0.0	7.4	11.4	0.4	1.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	797	354	651	906	323	958
V/C Ratio(X)	0.71	0.00	0.58	0.65	0.08	0.14
Avail Cap(c_a), veh/h	1413	629	783	1018	463	1236
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.2	0.0	12.1	6.6	8.7	5.8
Incr Delay (d2), s/veh	1.2	0.0	0.8	1.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	2.6	5.3	0.1	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.4	0.0	12.9	7.8	8.8	5.9
LnGrp LOS	B	A	B	A	A	A
Approach Vol, veh/h	563		962			163
Approach Delay, s/veh	17.4		9.8			6.4
Approach LOS	B		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.4	21.8			29.2	16.1
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	5.0	19.0			30.0	18.0
Max Q Clear Time (g_c+I1), s	2.4	13.4			3.7	8.6
Green Ext Time (p_c), s	0.0	2.4			0.7	1.5

Intersection Summary

HCM 6th Ctrl Delay	12.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	5	45	310	5	315	30	2280	520	375	2960	55
Future Volume (vph)	40	5	45	310	5	315	30	2280	520	375	2960	55
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4	8					2			6
Detector Phase	7	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	2.0	8.0	8.0	6.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	64.0	64.0	29.0	82.0	82.0
Total Split (%)	5.8%	13.3%	13.3%	9.2%	16.7%		9.2%	53.3%	53.3%	24.2%	68.3%	68.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 120









Actuated Cycle Length: 120













Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

			
Ø1	Ø2 (R)	Ø3	Ø4
29 s	64 s	11 s	16 s
			
Ø5	Ø6 (R)	Ø7	Ø8
11 s	82 s	7 s	20 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	43	5	49	337	5	342	33	2478	565	408	3217	60
v/c Ratio	0.33	0.03	0.17	0.88	0.02	0.38	0.38	0.92	0.54	0.72	0.93	0.05
Control Delay	51.6	51.2	1.4	71.0	47.4	32.3	67.6	34.1	6.5	55.0	24.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	51.2	1.4	71.0	47.4	32.3	67.6	34.1	6.5	55.0	24.8	0.1
Queue Length 50th (ft)	28	4	0	123	4	114	25	649	50	155	~871	0
Queue Length 95th (ft)	62	17	0	#204	16	153	60	#835	151	202	#1036	0
Internal Link Dist (ft)		328			3611			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	132	155	285	384	217	970	88	2685	1043	686	3454	1113
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.03	0.17	0.88	0.02	0.35	0.38	0.92	0.54	0.59	0.93	0.05

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

























Queue shown is maximum after two cycles.







HCM 6th Signalized Intersection Summary

11/18/2022

3: SH-83/Parker Rd & Aurora Pkwy

2040 Background with Pine Ext - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	45	310	5	315	30	2280	520	375	2960	55
Future Volume (veh/h)	40	5	45	310	5	315	30	2280	520	375	2960	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	49	337	5	342	33	2478	565	408	3217	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	156	132	505	218	714	59	2756	856	482	3298	1024
Arrive On Green	0.02	0.08	0.08	0.05	0.12	0.12	0.03	0.54	0.54	0.14	0.65	0.65
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	43	5	49	337	5	342	33	2478	565	408	3217	60
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	2.0	0.3	3.5	6.0	0.3	12.5	2.2	52.1	30.6	13.8	72.4	1.7
Cycle Q Clear(g_c), s	2.0	0.3	3.5	6.0	0.3	12.5	2.2	52.1	30.6	13.8	72.4	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	176	156	132	505	218	714	59	2756	856	482	3298	1024
V/C Ratio(X)	0.24	0.03	0.37	0.67	0.02	0.48	0.56	0.90	0.66	0.85	0.98	0.06
Avail Cap(c_a), veh/h	176	156	132	505	218	714	89	2756	856	691	3298	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.9	50.6	52.0	49.9	46.9	37.8	57.1	24.7	19.7	50.4	20.3	7.8
Incr Delay (d2), s/veh	0.7	0.1	1.7	3.4	0.0	0.5	7.9	5.2	4.0	6.7	10.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.1	1.5	2.3	0.1	4.3	1.1	21.3	11.9	6.2	26.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	50.6	53.8	53.3	47.0	38.3	65.0	29.9	23.7	57.1	31.3	7.9
LnGrp LOS	D	D	D	D	D	D	E	C	C	E	C	A
Approach Vol, veh/h	97			684			3076			3685		
Approach Delay, s/veh	52.2			45.8			29.2			33.8		
Approach LOS	D			D			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.7	71.3	11.0	16.0	9.0	84.0	7.0	20.0				
Change Period (Y+Rc), s	5.0	6.5	5.0	6.0	5.0	6.5	5.0	6.0				
Max Green Setting (Gmax), s	24.0	57.5	6.0	10.0	6.0	75.5	2.0	14.0				
Max Q Clear Time (g_c+I1), s	15.8	54.1	8.0	5.5	4.2	74.4	4.0	14.5				
Green Ext Time (p_c), s	0.9	3.3	0.0	0.0	0.0	1.1	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	33.2											
HCM 6th LOS	C											
Notes												

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	660	10	20	315	10	10	35	15	10	35	15
Future Vol, veh/h	10	660	10	20	315	10	10	35	15	10	35	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	717	11	22	342	11	11	38	16	11	38	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	353	0	0	728	0	0	979	1142	364	792	1142	177
Stage 1	-	-	-	-	-	-	745	745	-	392	392	-
Stage 2	-	-	-	-	-	-	234	397	-	400	750	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1202	-	-	871	-	-	204	199	633	280	199	835
Stage 1	-	-	-	-	-	-	372	419	-	604	605	-
Stage 2	-	-	-	-	-	-	748	602	-	597	417	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1202	-	-	871	-	-	165	192	633	225	192	835
Mov Cap-2 Maneuver	-	-	-	-	-	-	165	192	-	225	192	-
Stage 1	-	-	-	-	-	-	369	415	-	599	590	-
Stage 2	-	-	-	-	-	-	669	587	-	523	413	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.5	27.4	24.9
HCM LOS			D	C

























Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	225	1202	-	-	871	-	-	245
HCM Lane V/C Ratio	0.29	0.009	-	-	0.025	-	-	0.266
HCM Control Delay (s)	27.4	8	-	-	9.2	-	-	24.9
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.2	0	-	-	0.1	-	-	1

Intersection						
Intersection Delay, s/veh	5.6					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		1	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	847		282		16	
Demand Flow Rate, veh/h	863		287		16	
Vehicles Circulating, veh/h	15		443		863	
Vehicles Exiting, veh/h	604		436		15	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	5.5		5.4		5.5	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	L	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.501	0.499	0.470	0.530	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	432	431	135	152	16	326
Cap Entry Lane, veh/h	1331	1402	898	974	682	1107
Entry HV Adj Factor	0.981	0.981	0.980	0.982	1.000	0.981
Flow Entry, veh/h	424	423	132	149	16	320
Cap Entry, veh/h	1307	1375	880	957	682	1086
V/C Ratio	0.324	0.307	0.150	0.156	0.023	0.294
Control Delay, s/veh	5.7	5.3	5.6	5.2	5.5	6.2
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	0	1

Intersection Capacity Worksheets:
2027 Background + Project
No Pine Drive
Extension

Timings
11/15/2022

1: Gartrell Rd & Aurora Pkwy
2027 Back+Project - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	82	59	275	227	510	71	365	180	140	270	134
Future Volume (vph)	230	82	59	275	227	510	71	365	180	140	270	134
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	23.3	14.5	14.5	27.7	14.6	14.6	23.4	15.4	15.4	27.9	19.3	19.3
Actuated g/C Ratio	0.34	0.21	0.21	0.41	0.21	0.21	0.34	0.23	0.23	0.41	0.28	0.28
v/c Ratio	0.53	0.12	0.15	0.53	0.32	0.81	0.18	0.50	0.39	0.36	0.29	0.26

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 68.2

Natural Cycle: 105

Control Type: Actuated-Uncoordinated









Maximum v/c Ratio: 0.81













Intersection Signal Delay: 18.3

Intersection Capacity Utilization 67.9%

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	250	89	64	296	244	548	77	397	196	152	293	146
v/c Ratio	0.53	0.12	0.15	0.53	0.32	0.81	0.18	0.50	0.39	0.36	0.29	0.26
Control Delay	18.5	23.6	0.7	17.9	24.9	18.0	13.8	26.2	6.6	15.3	21.8	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.5	23.6	0.7	17.9	24.9	18.0	13.8	26.2	6.6	15.3	21.8	5.7
Queue Length 50th (ft)	64	16	0	78	46	43	19	79	0	40	54	0
Queue Length 95th (ft)	136	38	1	162	87	#223	45	131	48	79	93	40
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	513	1014	542	571	1014	754	555	1548	802	494	1548	774
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.09	0.12	0.52	0.24	0.73	0.14	0.26	0.24	0.31	0.19	0.19

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/15/2022

1: Gartrell Rd & Aurora Pkwy
2027 Back+Project - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	82	59	275	227	510	71	365	180	140	270	134
Future Volume (veh/h)	230	82	59	275	227	510	71	365	180	140	270	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	250	89	64	296	244	0	77	397	196	152	293	146
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	528	607	270	600	682		410	847	378	397	993	443
Arrive On Green	0.14	0.17	0.17	0.17	0.19	0.00	0.05	0.24	0.24	0.09	0.28	0.28
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	250	89	64	296	244	0	77	397	196	152	293	146
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	6.6	1.3	2.1	7.9	3.5	0.0	1.9	5.7	6.4	3.7	3.8	4.3
Cycle Q Clear(g_c), s	6.6	1.3	2.1	7.9	3.5	0.0	1.9	5.7	6.4	3.7	3.8	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	528	607	270	600	682		410	847	378	397	993	443
V/C Ratio(X)	0.47	0.15	0.24	0.49	0.36		0.19	0.47	0.52	0.38	0.29	0.33
Avail Cap(c_a), veh/h	601	1136	506	635	1136		655	1734	774	569	1734	774
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	21.0	21.3	15.7	20.8	0.0	15.8	19.4	19.7	14.8	16.8	17.0
Incr Delay (d2), s/veh	0.2	0.1	0.4	0.2	0.3	0.0	0.1	0.9	2.3	0.2	0.4	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.5	0.7	2.8	1.4	0.0	0.7	2.2	2.4	1.2	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.5	21.1	21.7	16.0	21.1	0.0	15.9	20.3	22.0	15.0	17.2	17.9
LnGrp LOS	B	C	C	B	C		B	C	C	B	B	B
Approach Vol, veh/h		403			540			670			591	
Approach Delay, s/veh		18.4			18.3			20.3			16.8	
Approach LOS		B			B			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	20.2	13.8	16.2	6.8	22.6	12.6	17.4				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	5.7	8.4	9.9	4.1	3.9	6.3	8.6	5.5				
Green Ext Time (p_c), s	0.1	5.8	0.0	0.5	0.0	4.2	0.1	1.1				

Intersection Summary

HCM 6th Ctrl Delay 18.5
HCM 6th LOS B




Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

























Int Delay, s/veh 0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	866	0	0	390	0	5
Future Vol, veh/h	866	0	0	390	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	973	0	0	520	0	13

Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 260 520
Stage 1	-	- 0 0
Stage 2	-	- 260 520
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 729 461
Stage 1	-	- - -
Stage 2	-	- 783 532
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	-	- 729 0
Mov Cap-2 Maneuver	-	- 729 0
Stage 1	-	- - 0
Stage 2	-	- 783 0

Approach	NB	SB
HCM Control Delay, s	0	
HCM LOS		-









Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	5	25	336	5	346	30	1940	160	166	2005	30
Future Volume (vph)	25	5	25	336	5	346	30	1940	160	166	2005	30
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4	8					2			6
Detector Phase	7	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	2.0	8.0	8.0	6.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	64.0	64.0	29.0	82.0	82.0
Total Split (%)	5.8%	13.3%	13.3%	9.2%	16.7%		9.2%	53.3%	53.3%	24.2%	68.3%	68.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	8.6	9.2	9.2	19.3	14.7	31.5	6.1	71.8	71.8	11.8	82.0	82.0
Actuated g/C Ratio	0.07	0.08	0.08	0.16	0.12	0.26	0.05	0.60	0.60	0.10	0.68	0.68
v/c Ratio	0.25	0.03	0.10	0.90	0.02	0.51	0.37	0.69	0.17	0.53	0.63	0.03

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 22.5
 Intersection Capacity Utilization 74.6%
 Analysis Period (min) 15

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

 Ø1	 Ø2 (R)	 Ø3	 Ø4
29 s	64 s	11 s	16 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
11 s	82 s	7 s	20 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	5	27	365	5	376	33	2109	174	180	2179	33
v/c Ratio	0.25	0.03	0.10	0.90	0.02	0.51	0.37	0.69	0.17	0.53	0.63	0.03
Control Delay	50.4	51.2	0.7	74.1	47.4	40.2	67.1	18.9	2.3	56.9	12.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.4	51.2	0.7	74.1	47.4	40.2	67.1	18.9	2.3	56.9	12.7	0.0
Queue Length 50th (ft)	18	4	0	~137	4	143	25	404	0	69	373	0
Queue Length 95th (ft)	45	17	0	#243	16	188	60	504	32	103	424	0
Internal Link Dist (ft)		328			3611			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	106	155	285	406	228	1015	89	3041	1016	686	3474	1118
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.03	0.09	0.90	0.02	0.37	0.37	0.69	0.17	0.26	0.63	0.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

























Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/15/2022

3: SH-83/Parker Rd & Aurora Pkwy

2027 Back+Project - AM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	5	25	336	5	346	30	1940	160	166	2005	30
Future Volume (veh/h)	25	5	25	336	5	346	30	1940	160	166	2005	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	5	27	365	5	376	33	2109	174	180	2179	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	156	132	509	218	524	59	3104	963	246	3298	1024
Arrive On Green	0.02	0.08	0.08	0.05	0.12	0.12	0.03	0.61	0.61	0.07	0.65	0.65
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	27	5	27	365	5	376	33	2109	174	180	2179	33
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	1.7	0.3	1.9	6.0	0.3	14.0	2.2	33.1	5.8	6.1	31.6	0.9
Cycle Q Clear(g_c), s	1.7	0.3	1.9	6.0	0.3	14.0	2.2	33.1	5.8	6.1	31.6	0.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	173	156	132	509	218	524	59	3104	963	246	3298	1024
V/C Ratio(X)	0.16	0.03	0.20	0.72	0.02	0.72	0.56	0.68	0.18	0.73	0.66	0.03
Avail Cap(c_a), veh/h	173	156	132	509	218	524	89	3104	963	691	3298	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.3	50.6	51.3	50.5	46.9	45.7	57.1	15.7	10.4	54.6	13.1	7.7
Incr Delay (d2), s/veh	0.4	0.1	0.8	4.8	0.0	4.7	7.9	1.2	0.4	4.1	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.1	0.8	2.9	0.1	5.6	1.1	12.6	2.1	2.7	10.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.8	50.6	52.0	55.4	47.0	50.4	65.0	16.9	10.8	58.7	14.2	7.7
LnGrp LOS	D	D	D	E	D	D	E	B	B	E	B	A
Approach Vol, veh/h	59			746			2316			2392		
Approach Delay, s/veh	50.9			52.8			17.2			17.4		
Approach LOS	D			D			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.6	79.4	11.0	16.0	9.0	84.0	7.0	20.0				
Change Period (Y+Rc), s	5.0	6.5	5.0	6.0	5.0	6.5	5.0	6.0				
Max Green Setting (Gmax), s	24.0	57.5	6.0	10.0	6.0	75.5	2.0	14.0				
Max Q Clear Time (g_c+I1), s	8.1	35.1	8.0	3.9	4.2	33.6	3.7	16.0				
Green Ext Time (p_c), s	0.5	17.4	0.0	0.0	0.0	23.6	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	22.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	286	19	10	368	10	11	25	10	10	30	11
Future Vol, veh/h	13	286	19	10	368	10	11	25	10	10	30	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	311	21	11	400	11	12	27	11	11	33	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	411	0	0	332	0	0	589	783	166	625	788	206
Stage 1	-	-	-	-	-	-	350	350	-	428	428	-
Stage 2	-	-	-	-	-	-	239	433	-	197	360	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1144	-	-	1224	-	-	392	324	849	369	322	800
Stage 1	-	-	-	-	-	-	639	631	-	575	583	-
Stage 2	-	-	-	-	-	-	743	580	-	786	625	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1144	-	-	1224	-	-	350	317	849	335	315	800
Mov Cap-2 Maneuver	-	-	-	-	-	-	350	317	-	335	315	-
Stage 1	-	-	-	-	-	-	631	623	-	568	578	-
Stage 2	-	-	-	-	-	-	684	575	-	733	618	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	16	16.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	377	1144	-	-	1224	-	-	367
HCM Lane V/C Ratio	0.133	0.012	-	-	0.009	-	-	0.151
HCM Control Delay (s)	16	8.2	-	-	8	-	-	16.5
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.5

Intersection						
Intersection Delay, s/veh	4.5					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	356		636		4	92
Demand Flow Rate, veh/h	363		649		4	94
Vehicles Circulating, veh/h	9		40		361	650
Vehicles Exiting, veh/h	735		325		11	39
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	3.7		4.8		3.5	5.7
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.471	0.529	0.470	0.530	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	171	192	305	344	4	94
Cap Entry Lane, veh/h	1339	1409	1301	1373	1045	817
Entry HV Adj Factor	0.978	0.982	0.981	0.981	1.000	0.979
Flow Entry, veh/h	167	189	299	337	4	92
Cap Entry, veh/h	1309	1384	1276	1346	1045	800
V/C Ratio	0.128	0.136	0.234	0.251	0.004	0.115
Control Delay, s/veh	3.8	3.7	4.9	4.8	3.5	5.7
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	0	1	1	0	0

Intersection

Int Delay, s/veh 2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑	↑↑	
Traffic Vol, veh/h	257	30	17	465	100	47
Future Vol, veh/h	257	30	17	465	100	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	279	33	18	505	109	51

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	312
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1245
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1245
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	518	-	-	1245	-
HCM Lane V/C Ratio	0.308	-	-	0.015	-
HCM Control Delay (s)	15	-	-	7.9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.3	-	-	0	-

Intersection						
Int Delay, s/veh	1.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↱	↑↑	↱	
Traffic Vol, veh/h	283	21	9	425	58	26
Future Vol, veh/h	283	21	9	425	58	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	308	23	10	462	63	28

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	331
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1225
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1225
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	524	-	-	1225	-
HCM Lane V/C Ratio	0.174	-	-	0.008	-
HCM Control Delay (s)	13.3	-	-	8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection

























Int Delay, s/veh 2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↔	↑↑	↔	
Traffic Vol, veh/h	293	16	9	30	44	26
Future Vol, veh/h	293	16	9	30	44	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	318	17	10	33	48	28

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	335
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1221
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1221
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	676	-	-	1221	-
HCM Lane V/C Ratio	0.113	-	-	0.008	-
HCM Control Delay (s)	11	-	-	8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0	-

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	169	93	250	158	260	105	350	310	420	385	134
Future Volume (vph)	197	169	93	250	158	260	105	350	310	420	385	134
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	22.2	11.1	11.1	23.7	11.9	11.9	24.2	15.6	15.6	32.3	22.2	22.2
Actuated g/C Ratio	0.33	0.16	0.16	0.35	0.18	0.18	0.36	0.23	0.23	0.48	0.33	0.33
v/c Ratio	0.46	0.32	0.28	0.56	0.27	0.56	0.27	0.47	0.54	0.86	0.36	0.24

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 67.9

Natural Cycle: 105

Control Type: Actuated-Uncoordinated









Maximum v/c Ratio: 0.86













Intersection Signal Delay: 19.4

Intersection Capacity Utilization 72.4%

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	214	184	101	269	170	280	114	380	337	457	418	146
v/c Ratio	0.46	0.32	0.28	0.56	0.27	0.56	0.27	0.47	0.54	0.86	0.36	0.24
Control Delay	18.4	27.8	5.2	20.6	26.9	8.6	12.4	24.7	6.5	33.5	20.1	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.4	27.8	5.2	20.6	26.9	8.6	12.4	24.7	6.5	33.5	20.1	5.1
Queue Length 50th (ft)	58	36	0	75	32	0	25	71	0	124	71	0
Queue Length 95th (ft)	120	70	24	151	65	62	57	118	59	#325	126	39
Internal Link Dist (ft)	846		846		846		1151		1151		535	
Turn Bay Length (ft)	180	475		260	230		260	145		435		
Base Capacity (vph)	521	1001	537	512	1001	642	535	1528	875	529	1528	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.18	0.19	0.53	0.17	0.44	0.21	0.25	0.39	0.86	0.27	0.19

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/15/2022

1: Gartrell Rd & Aurora Pkwy
2027 Back+Project - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	197	169	93	250	158	260	105	350	310	420	385	134
Future Volume (veh/h)	197	169	93	250	158	260	105	350	310	420	385	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	214	184	101	269	170	0	114	380	337	457	418	146
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	468	492	219	464	575		459	1032	460	515	1333	595
Arrive On Green	0.13	0.14	0.14	0.15	0.16	0.00	0.06	0.29	0.29	0.15	0.38	0.38
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	214	184	101	269	170	0	114	380	337	457	418	146
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	7.4	3.5	4.3	9.3	3.1	0.0	3.2	6.2	14.1	11.0	6.1	4.7
Cycle Q Clear(g_c), s	7.4	3.5	4.3	9.3	3.1	0.0	3.2	6.2	14.1	11.0	6.1	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	468	492	219	464	575		459	1032	460	515	1333	595
V/C Ratio(X)	0.46	0.37	0.46	0.58	0.30		0.25	0.37	0.73	0.89	0.31	0.25
Avail Cap(c_a), veh/h	509	918	409	464	918		610	1401	625	515	1401	625
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	28.8	29.1	22.1	27.1	0.0	16.3	20.7	23.5	17.5	16.3	15.8
Incr Delay (d2), s/veh	0.3	0.5	1.5	1.2	0.3	0.0	0.1	0.5	5.2	16.4	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	1.4	1.7	3.8	1.3	0.0	1.2	2.4	5.5	6.8	2.2	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.9	29.2	30.7	23.3	27.4	0.0	16.4	21.2	28.7	33.9	16.6	16.3
LnGrp LOS	C	C	C	C	C		B	C	C	C	B	B
Approach Vol, veh/h		499			439			831			1021	
Approach Delay, s/veh		26.8			24.9			23.6			24.3	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	27.3	15.0	16.2	8.8	33.6	13.3	17.9				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	16.1	11.3	6.3	5.2	8.1	9.4	5.1				
Green Ext Time (p_c), s	0.0	5.3	0.0	1.1	0.0	5.5	0.0	0.7				

Intersection Summary

HCM 6th Ctrl Delay 24.6
HCM 6th LOS C




Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

























Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	536	0	5	777	2	1
Future Vol, veh/h	536	0	5	777	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	602	0	7	1036	5	3

Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 525 1043
Stage 1	-	- 0 0
Stage 2	-	- 525 1043
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 513 229
Stage 1	-	- - -
Stage 2	-	- 593 306
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	-	- 513 0
Mov Cap-2 Maneuver	-	- 513 0
Stage 1	-	- - 0
Stage 2	-	- 593 0

Approach	NB	SB
HCM Control Delay, s	0	12.1
HCM LOS		B









Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	513
HCM Lane V/C Ratio	-	-	0.015
HCM Control Delay (s)	-	-	12.1
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	5	40	188	5	201	25	2245	367	258	2055	50
Future Volume (vph)	35	5	40	188	5	201	25	2245	367	258	2055	50
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4	8					2			6
Detector Phase	7	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	2.0	8.0	8.0	6.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	64.0	64.0	29.0	82.0	82.0
Total Split (%)	5.8%	13.3%	13.3%	9.2%	16.7%		9.2%	53.3%	53.3%	24.2%	68.3%	68.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	10.2	9.0	9.0	18.5	13.9	34.1	6.2	69.2	69.2	15.2	82.6	82.6
Actuated g/C Ratio	0.08	0.08	0.08	0.15	0.12	0.28	0.05	0.58	0.58	0.13	0.69	0.69
v/c Ratio	0.30	0.04	0.16	0.57	0.02	0.28	0.29	0.83	0.37	0.64	0.64	0.05

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 21.7
 Intersection Capacity Utilization 77.4%
 Analysis Period (min) 15

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

 Ø1	 Ø2 (R)	 Ø3	 Ø4
29 s	64 s	11 s	16 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
11 s	82 s	7 s	20 s

























												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	38	5	43	204	5	218	27	2440	399	280	2234	54
v/c Ratio	0.30	0.04	0.16	0.57	0.02	0.28	0.29	0.83	0.37	0.64	0.64	0.05
Control Delay	51.1	51.4	1.2	51.0	47.6	33.6	63.4	25.3	2.5	56.5	12.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	51.4	1.2	51.0	47.6	33.6	63.4	25.3	2.5	56.5	12.8	0.1
Queue Length 50th (ft)	25	4	0	72	4	75	20	556	0	108	390	0
Queue Length 95th (ft)	57	17	0	108	16	105	52	707	48	147	442	0
Internal Link Dist (ft)		328			3611			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	125	155	285	361	232	966	92	2930	1081	686	3499	1126
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.03	0.15	0.57	0.02	0.23	0.29	0.83	0.37	0.41	0.64	0.05
Intersection Summary												

HCM 6th Signalized Intersection Summary

11/15/2022

3: SH-83/Parker Rd & Aurora Pkwy

2027 Back+Project - PM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	5	40	188	5	201	25	2245	367	258	2055	50
Future Volume (veh/h)	35	5	40	188	5	201	25	2245	367	258	2055	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	5	43	204	5	218	27	2440	399	280	2234	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	125	106	462	187	563	53	3033	942	352	3401	1056
Arrive On Green	0.02	0.07	0.07	0.05	0.10	0.10	0.03	0.59	0.59	0.10	0.67	0.67
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	38	5	43	204	5	218	27	2440	399	280	2234	54
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	2.0	0.3	3.1	6.0	0.3	8.1	1.8	44.6	16.4	9.5	31.2	1.4
Cycle Q Clear(g_c), s	2.0	0.3	3.1	6.0	0.3	8.1	1.8	44.6	16.4	9.5	31.2	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	167	125	106	462	187	563	53	3033	942	352	3401	1056
V/C Ratio(X)	0.23	0.04	0.41	0.44	0.03	0.39	0.51	0.80	0.42	0.80	0.66	0.05
Avail Cap(c_a), veh/h	167	156	132	462	218	609	89	3033	942	691	3401	1056
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	52.4	53.7	48.9	48.7	41.5	57.4	18.9	13.2	52.7	11.9	6.9
Incr Delay (d2), s/veh	0.7	0.1	2.5	0.7	0.1	0.4	7.4	2.4	1.4	4.1	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.1	1.3	2.9	0.1	2.8	0.9	17.3	6.0	4.2	9.7	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	52.5	56.2	49.6	48.8	41.9	64.8	21.3	14.6	56.8	12.9	7.0
LnGrp LOS	D	D	E	D	D	D	E	C	B	E	B	A
Approach Vol, veh/h	86			427			2866			2568		
Approach Delay, s/veh	54.2			45.7			20.8			17.6		
Approach LOS	D			D			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.2	77.8	11.0	14.0	8.6	86.4	7.0	18.0				
Change Period (Y+Rc), s	5.0	6.5	5.0	6.0	5.0	6.5	5.0	6.0				
Max Green Setting (Gmax), s	24.0	57.5	6.0	10.0	6.0	75.5	2.0	14.0				
Max Q Clear Time (g_c+I1), s	11.5	46.6	8.0	5.1	3.8	33.2	4.0	10.1				
Green Ext Time (p_c), s	0.7	10.2	0.0	0.0	0.0	24.8	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	299	13	15	241	10	20	25	10	10	30	19
Future Vol, veh/h	12	299	13	15	241	10	20	25	10	10	30	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	325	14	16	262	11	22	27	11	11	33	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	273	0	0	339	0	0	538	663	170	502	665	137
Stage 1	-	-	-	-	-	-	358	358	-	300	300	-
Stage 2	-	-	-	-	-	-	180	305	-	202	365	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1287	-	-	1217	-	-	426	380	844	452	379	886
Stage 1	-	-	-	-	-	-	633	626	-	684	664	-
Stage 2	-	-	-	-	-	-	804	661	-	781	622	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1287	-	-	1217	-	-	381	371	844	414	370	886
Mov Cap-2 Maneuver	-	-	-	-	-	-	381	371	-	414	370	-
Stage 1	-	-	-	-	-	-	627	620	-	677	655	-
Stage 2	-	-	-	-	-	-	736	652	-	730	616	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.5	15	14
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	418	1287	-	-	1217	-	-	466
HCM Lane V/C Ratio	0.143	0.01	-	-	0.013	-	-	0.138
HCM Control Delay (s)	15	7.8	-	-	8	-	-	14
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.5

Intersection						
Intersection Delay, s/veh	4.5					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		1	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	654		349		14	
Demand Flow Rate, veh/h	667		356		14	
Vehicles Circulating, veh/h	8		116		665	
Vehicles Exiting, veh/h	425		563		10	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	4.7		4.1		4.6	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.469	0.531	0.469	0.531	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	313	354	167	189	14	72
Cap Entry Lane, veh/h	1340	1410	1213	1287	807	1045
Entry HV Adj Factor	0.982	0.979	0.983	0.979	1.000	0.986
Flow Entry, veh/h	307	347	164	185	14	71
Cap Entry, veh/h	1316	1381	1192	1260	807	1030
V/C Ratio	0.234	0.251	0.138	0.147	0.017	0.069
Control Delay, s/veh	4.7	4.7	4.2	4.1	4.6	4.1
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	0	1	0	0

Intersection

Int Delay, s/veh 2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	
Traffic Vol, veh/h	386	102	48	246	60	29
Future Vol, veh/h	386	102	48	246	60	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	420	111	52	267	65	32

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	531
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1033
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1033
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	16.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	420	-	-	1033	-
HCM Lane V/C Ratio	0.23	-	-	0.051	-
HCM Control Delay (s)	16.1	-	-	8.7	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.9	-	-	0.2	-

Intersection

Int Delay, s/veh 1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↖	
Traffic Vol, veh/h	349	66	30	254	39	18
Future Vol, veh/h	349	66	30	254	39	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	379	72	33	276	42	20

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	451
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1106
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1106
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	13.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	480	-	-	1106	-
HCM Lane V/C Ratio	0.129	-	-	0.029	-
HCM Control Delay (s)	13.6	-	-	8.4	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↱	↑↑	↲	
Traffic Vol, veh/h	315	52	30	252	33	18
Future Vol, veh/h	315	52	30	252	33	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	342	57	33	274	36	20

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	399
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1156
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1156
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

























Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	12.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	521	-	-	1156	-
HCM Lane V/C Ratio	0.106	-	-	0.028	-
HCM Control Delay (s)	12.7	-	-	8.2	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

***Intersection Capacity Worksheets:
2027 Background + Project
WITH Pine Drive
Extension***

Timings
11/18/2022

1: Gartrell Rd & Aurora Pkwy
2027 Back+Project w/Pine Ext_Signal - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	318	132	56	275	227	510	70	265	130	140	100	302
Future Volume (vph)	318	132	56	275	227	510	70	265	130	140	100	302
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

Intersection Summary









Cycle Length: 90

Actuated Cycle Length: 65.5

Natural Cycle: 105













Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

Queues
11/18/2022

1: Gartrell Rd & Aurora Pkwy
2027 Back+Project w/Pine Ext_Signal - AM Peak Hour

























												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	346	143	61	296	244	548	76	288	141	152	109	328
v/c Ratio	0.66	0.19	0.14	0.52	0.33	0.78	0.17	0.42	0.33	0.34	0.12	0.51
Control Delay	20.7	22.4	0.6	15.9	23.9	13.7	14.1	26.1	7.6	15.6	21.8	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.7	22.4	0.6	15.9	23.9	13.7	14.1	26.1	7.6	15.6	21.8	6.2
Queue Length 50th (ft)	84	24	0	69	43	24	17	51	0	36	17	0
Queue Length 95th (ft)	175	52	0	147	81	139	45	98	43	81	41	59
Internal Link Dist (ft)	846			846			1151			535		
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	530	1044	555	588	1044	795	577	1593	790	508	1593	893
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.14	0.11	0.50	0.23	0.69	0.13	0.18	0.18	0.30	0.07	0.37
Intersection Summary												

HCM 6th Signalized Intersection Summary

11/18/2022

1: Gartrell Rd & Aurora Pkwy

2027 Back+Project w/Pine Ext_Signal - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	318	132	56	275	227	510	70	265	130	140	100	302
Future Volume (veh/h)	318	132	56	275	227	510	70	265	130	140	100	302
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	346	143	61	296	244	0	76	288	141	152	109	328
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	562	651	290	589	595		425	828	369	435	976	435
Arrive On Green	0.18	0.18	0.18	0.17	0.17	0.00	0.05	0.23	0.23	0.09	0.27	0.27
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	346	143	61	296	244	0	76	288	141	152	109	328
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	9.5	2.1	2.0	8.1	3.7	0.0	1.9	4.1	4.5	3.8	1.4	11.5
Cycle Q Clear(g_c), s	9.5	2.1	2.0	8.1	3.7	0.0	1.9	4.1	4.5	3.8	1.4	11.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	562	651	290	589	595		425	828	369	435	976	435
V/C Ratio(X)	0.62	0.22	0.21	0.50	0.41		0.18	0.35	0.38	0.35	0.11	0.75
Avail Cap(c_a), veh/h	562	1113	496	617	1113		663	1698	758	600	1698	758
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.1	21.1	21.0	16.2	22.6	0.0	16.4	19.4	19.6	15.1	16.5	20.1
Incr Delay (d2), s/veh	1.5	0.2	0.4	0.2	0.5	0.0	0.1	0.5	1.4	0.2	0.1	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.8	0.7	2.9	1.5	0.0	0.7	1.6	1.7	1.3	0.5	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.6	21.3	21.4	16.5	23.0	0.0	16.5	20.0	21.0	15.3	16.6	25.7
LnGrp LOS	B	C	C	B	C		B	B	C	B	B	C
Approach Vol, veh/h		550			540			505			589	
Approach Delay, s/veh		19.0			19.4			19.7			21.3	
Approach LOS		B			B			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	20.1	14.0	17.1	6.9	22.7	15.0	16.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	5.8	6.5	10.1	4.1	3.9	13.5	11.5	5.7				
Green Ext Time (p_c), s	0.0	4.2	0.0	0.8	0.0	3.2	0.0	1.1				

Intersection Summary















HCM 6th Ctrl Delay 19.9

HCM 6th LOS B

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	  		 	 	
Traffic Volume (vph)	690	173	235	33	219
Future Volume (vph)	690	173	235	33	219
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	2		1	6
Permitted Phases			2	6	
Detector Phase	8	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	24.0	11.0	24.0
Total Split (s)	25.0	24.0	24.0	11.0	35.0
Total Split (%)	41.7%	40.0%	40.0%	18.3%	58.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min

Intersection Summary





Cycle Length: 60






Actuated Cycle Length: 42.9

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Pine Dr & Inspiration Dr













 Ø1	 Ø2	
11 s	24 s	
 Ø6		 Ø8
35 s		25 s

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	772	188	255	36	238
v/c Ratio	0.67	0.35	0.40	0.09	0.35
Control Delay	16.4	16.8	5.0	9.3	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	16.8	5.0	9.3	11.5
Queue Length 50th (ft)	58	28	0	5	37
Queue Length 95th (ft)	173	99	45	19	86
Internal Link Dist (ft)	290	473			411
Turn Bay Length (ft)				300	
Base Capacity (vph)	1630	836	851	412	1348
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.47	0.22	0.30	0.09	0.18
Intersection Summary					

HCM 6th Signalized Intersection Summary

11/18/2022

2: Pine Dr & Inspiration Dr
2027 Back+Project w/Pine Ext_Signal - AM Peak Hour

























						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 					
Traffic Volume (veh/h)	690	20	173	235	33	219
Future Volume (veh/h)	690	20	173	235	33	219
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	771	0	188	255	36	238
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1046	465	445	377	388	788
Arrive On Green	0.29	0.00	0.24	0.24	0.04	0.42
Sat Flow, veh/h	3563	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	771	0	188	255	36	238
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	8.2	0.0	3.6	6.1	0.6	3.6
Cycle Q Clear(g_c), s	8.2	0.0	3.6	6.1	0.6	3.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1046	465	445	377	388	788
V/C Ratio(X)	0.74	0.00	0.42	0.68	0.09	0.30
Avail Cap(c_a), veh/h	1609	716	800	678	527	1289
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	0.0	13.6	14.6	10.1	8.1
Incr Delay (d2), s/veh	1.0	0.0	0.6	2.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	1.3	2.1	0.2	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.4	0.0	14.2	16.7	10.2	8.3
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	771		443			274
Approach Delay, s/veh	14.4		15.7			8.5
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.7	16.0			23.7	18.4
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	5.0	18.0			29.0	19.0
Max Q Clear Time (g_c+I1), s	2.6	8.1			5.6	10.2
Green Ext Time (p_c), s	0.0	1.4			1.3	2.1
Intersection Summary						
HCM 6th Ctrl Delay			13.7			
HCM 6th LOS			B			

Notes

User approved volume balancing among the lanes for turning movement.

Timings
11/18/2022

3: SH-83/Parker Rd & Aurora Pkwy
2027 Back+Project w/Pine Ext_Signal - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	5	25	304	5	335	30	1945	148	164	2010	30
Future Volume (vph)	25	5	25	304	5	335	30	1945	148	164	2010	30
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4	8					2			6
Detector Phase	7	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	2.0	8.0	8.0	6.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	64.0	64.0	29.0	82.0	82.0
Total Split (%)	5.8%	13.3%	13.3%	9.2%	16.7%		9.2%	53.3%	53.3%	24.2%	68.3%	68.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 120









Actuated Cycle Length: 120













Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

			
Ø1	Ø2 (R)	Ø3	Ø4
29 s	64 s	11 s	16 s
			
Ø5	Ø6 (R)	Ø7	Ø8
11 s	82 s	7 s	20 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	5	27	330	5	364	33	2114	161	178	2185	33
v/c Ratio	0.25	0.03	0.10	0.82	0.02	0.50	0.37	0.69	0.16	0.53	0.63	0.03
Control Delay	50.4	51.2	0.7	65.0	47.4	40.1	67.1	18.8	2.2	56.9	12.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.4	51.2	0.7	65.0	47.4	40.1	67.1	18.8	2.2	56.9	12.6	0.0
Queue Length 50th (ft)	18	4	0	120	4	138	25	406	0	69	375	0
Queue Length 95th (ft)	45	17	0	#208	16	182	60	504	30	102	426	0
Internal Link Dist (ft)	328			3611			3398			668		
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	106	155	285	402	226	1011	89	3051	1015	686	3480	1120
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.03	0.09	0.82	0.02	0.36	0.37	0.69	0.16	0.26	0.63	0.03

























Intersection Summary







95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/18/2022

3: SH-83/Parker Rd & Aurora Pkwy
2027 Back+Project w/Pine Ext_Signal - AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	25	5	25	304	5	335	30	1945	148	164	2010	30	
Future Volume (veh/h)	25	5	25	304	5	335	30	1945	148	164	2010	30	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	27	5	27	330	5	364	33	2114	161	178	2185	33	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	174	156	132	509	218	523	59	3107	964	244	3298	1024	
Arrive On Green	0.02	0.08	0.08	0.05	0.12	0.12	0.03	0.61	0.61	0.07	0.65	0.65	
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585	
Grp Volume(v), veh/h	27	5	27	330	5	364	33	2114	161	178	2185	33	
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585	
Q Serve(g_s), s	1.7	0.3	1.9	6.0	0.3	14.0	2.2	33.2	5.3	6.1	31.8	0.9	
Cycle Q Clear(g_c), s	1.7	0.3	1.9	6.0	0.3	14.0	2.2	33.2	5.3	6.1	31.8	0.9	
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	174	156	132	509	218	523	59	3107	964	244	3298	1024	
V/C Ratio(X)	0.16	0.03	0.20	0.65	0.02	0.70	0.56	0.68	0.17	0.73	0.66	0.03	
Avail Cap(c_a), veh/h	174	156	132	509	218	523	89	3107	964	691	3298	1024	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	49.3	50.6	51.3	49.8	46.9	45.6	57.1	15.7	10.2	54.6	13.2	7.7	
Incr Delay (d2), s/veh	0.4	0.1	0.8	2.9	0.0	4.0	7.9	1.2	0.4	4.1	1.1	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.8	0.1	0.8	2.1	0.1	5.4	1.1	12.6	1.9	2.7	10.3	0.3	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	49.8	50.6	52.0	52.6	47.0	49.6	65.0	16.9	10.6	58.8	14.2	7.7	
LnGrp LOS	D	D	D	D	D	D	E	B	B	E	B	A	
Approach Vol, veh/h	59			699				2308				2396	
Approach Delay, s/veh	50.9			51.0				17.2				17.4	
Approach LOS	D			D				B				B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	13.5	79.5	11.0	16.0	9.0	84.0	7.0	20.0					
Change Period (Y+Rc), s	5.0	6.5	5.0	6.0	5.0	6.5	5.0	6.0					
Max Green Setting (Gmax), s	24.0	57.5	6.0	10.0	6.0	75.5	2.0	14.0					
Max Q Clear Time (g_c+I1), s	8.1	35.2	8.0	3.9	4.2	33.8	3.7	16.0					
Green Ext Time (p_c), s	0.4	17.3	0.0	0.0	0.0	23.6	0.0	0.0					
Intersection Summary													
HCM 6th Ctrl Delay	22.0												
HCM 6th LOS	C												
Notes													

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	421	10	10	529	10	10	25	10	10	30	11
Future Vol, veh/h	13	421	10	10	529	10	10	25	10	10	30	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	458	11	11	575	11	11	27	11	11	33	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	586	0	0	469	0	0	818	1100	235	874	1100	293
Stage 1	-	-	-	-	-	-	492	492	-	603	603	-
Stage 2	-	-	-	-	-	-	326	608	-	271	497	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	985	-	-	1089	-	-	268	211	767	244	211	703
Stage 1	-	-	-	-	-	-	527	546	-	453	487	-
Stage 2	-	-	-	-	-	-	661	484	-	712	543	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	985	-	-	1089	-	-	227	206	767	212	206	703
Mov Cap-2 Maneuver	-	-	-	-	-	-	227	206	-	212	206	-
Stage 1	-	-	-	-	-	-	520	538	-	447	482	-
Stage 2	-	-	-	-	-	-	600	479	-	657	535	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.2	22.7	23.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	252	985	-	-	1089	-	-	245
HCM Lane V/C Ratio	0.194	0.014	-	-	0.01	-	-	0.226
HCM Control Delay (s)	22.7	8.7	-	-	8.3	-	-	23.9
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-	-	0.8

Intersection						
Intersection Delay, s/veh	4.4					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		1	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	342		589		4	
Demand Flow Rate, veh/h	349		601		4	
Vehicles Circulating, veh/h	9		40		347	
Vehicles Exiting, veh/h	687		311		11	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	3.7		4.7		3.4	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.469	0.531	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	164	185	282	319	4	94
Cap Entry Lane, veh/h	1339	1409	1301	1373	1057	851
Entry HV Adj Factor	0.980	0.980	0.982	0.979	1.000	0.979
Flow Entry, veh/h	161	181	277	312	4	92
Cap Entry, veh/h	1312	1381	1278	1344	1057	833
V/C Ratio	0.123	0.131	0.217	0.232	0.004	0.110
Control Delay, s/veh	3.7	3.7	4.7	4.6	3.4	5.4
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	0	1	1	0	0

Intersection

Int Delay, s/veh 6.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	250	24	182	445	71	190
Future Vol, veh/h	250	24	182	445	71	190
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	272	26	198	484	77	207

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	298
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1260
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1260
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	21.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	492	-	-	1260	-
HCM Lane V/C Ratio	0.577	-	-	0.157	-
HCM Control Delay (s)	21.8	-	-	8.4	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	3.6	-	-	0.6	-

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	425	15	7	585	42	18
Future Vol, veh/h	425	15	7	585	42	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	462	16	8	636	46	20

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	478	0	804	239
Stage 1	-	-	-	-	470	-
Stage 2	-	-	-	-	334	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1081	-	321	762
Stage 1	-	-	-	-	595	-
Stage 2	-	-	-	-	697	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1081	-	319	762
Mov Cap-2 Maneuver	-	-	-	-	319	-
Stage 1	-	-	-	-	595	-
Stage 2	-	-	-	-	692	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	16.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	386	-	-	1081	-
HCM Lane V/C Ratio	0.169	-	-	0.007	-
HCM Control Delay (s)	16.2	-	-	8.4	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection

Int Delay, s/veh 1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	
Traffic Vol, veh/h	429	15	8	551	40	22
Future Vol, veh/h	429	15	8	551	40	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	466	16	9	599	43	24

























Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	482
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1077
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1077
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	15.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	406	-	-	1077	-
HCM Lane V/C Ratio	0.166	-	-	0.008	-
HCM Control Delay (s)	15.6	-	-	8.4	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Timings
11/18/2022

1: Gartrell Rd & Aurora Pkwy
2027 Back+Project w/Pine Ext_Signal - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	234	91	250	158	260	97	190	165	420	285	226
Future Volume (vph)	322	234	91	250	158	260	97	190	165	420	285	226
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

Intersection Summary









Cycle Length: 90













Actuated Cycle Length: 64.3

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	350	254	99	269	170	280	105	207	179	457	310	246
v/c Ratio	0.66	0.38	0.25	0.55	0.28	0.56	0.26	0.32	0.41	0.85	0.31	0.40
Control Delay	20.9	25.6	4.5	17.9	25.0	8.5	13.3	24.6	7.5	32.7	21.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	25.6	4.5	17.9	25.0	8.5	13.3	24.6	7.5	32.7	21.0	5.5
Queue Length 50th (ft)	91	46	0	66	30	0	23	36	0	124	51	0
Queue Length 95th (ft)	175	84	23	132	60	58	53	68	47	#241	95	51
Internal Link Dist (ft)	846		846		846		1151		1151		535	
Turn Bay Length (ft)	180	475		260	230		260	145		435		
Base Capacity (vph)	545	1050	557	529	1050	661	527	1603	815	539	1603	851
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.24	0.18	0.51	0.16	0.42	0.20	0.13	0.22	0.85	0.19	0.29

Intersection Summary

























95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/18/2022

1: Gartrell Rd & Aurora Pkwy

2027 Back+Project w/Pine Ext_Signal - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	322	234	91	250	158	260	97	190	165	420	285	226
Future Volume (veh/h)	322	234	91	250	158	260	97	190	165	420	285	226
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	350	254	99	269	170	0	105	207	179	457	310	246
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	558	627	279	501	562		390	668	298	554	1041	464
Arrive On Green	0.17	0.18	0.18	0.15	0.16	0.00	0.07	0.19	0.19	0.17	0.29	0.29
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	350	254	99	269	170	0	105	207	179	457	310	246
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	10.5	4.1	3.5	7.9	2.7	0.0	3.0	3.2	6.6	11.0	4.3	8.3
Cycle Q Clear(g_c), s	10.5	4.1	3.5	7.9	2.7	0.0	3.0	3.2	6.6	11.0	4.3	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	558	627	279	501	562		390	668	298	554	1041	464
V/C Ratio(X)	0.63	0.40	0.35	0.54	0.30		0.27	0.31	0.60	0.82	0.30	0.53
Avail Cap(c_a), veh/h	558	1051	468	533	1051		577	1605	716	554	1605	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	23.5	23.2	18.0	23.9	0.0	19.0	22.5	23.9	17.7	17.6	19.0
Incr Delay (d2), s/veh	1.7	0.4	0.8	0.4	0.3	0.0	0.1	0.6	4.1	9.2	0.3	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	1.6	1.3	3.0	1.1	0.0	1.1	1.3	2.6	5.9	1.6	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.7	23.9	24.0	18.4	24.2	0.0	19.1	23.1	28.0	26.9	17.9	21.0
LnGrp LOS	B	C	C	B	C		B	C	C	C	B	C
Approach Vol, veh/h		703			439			491			1013	
Approach Delay, s/veh		21.8			20.6			24.0			22.7	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	18.1	13.8	17.3	8.3	24.8	15.0	16.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	8.6	9.9	6.1	5.0	10.3	12.5	4.7				
Green Ext Time (p_c), s	0.0	3.4	0.0	1.5	0.0	4.9	0.0	0.8				

Intersection Summary















HCM 6th Ctrl Delay 22.4

HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	  		 	 	
Traffic Volume (vph)	425	362	465	29	136
Future Volume (vph)	425	362	465	29	136
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	2		1	6
Permitted Phases			2	6	
Detector Phase	8	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	24.0	11.0	24.0
Total Split (s)	24.0	25.0	25.0	11.0	36.0
Total Split (%)	40.0%	41.7%	41.7%	18.3%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min

Intersection Summary





Cycle Length: 60






Actuated Cycle Length: 44

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Pine Dr & Inspiration Dr












 Ø1	 Ø2	
11 s	25 s	
 Ø6		 Ø8
36 s		24 s

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	500	393	505	32	148
v/c Ratio	0.53	0.59	0.57	0.08	0.18
Control Delay	16.7	17.9	4.7	7.6	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	17.9	4.7	7.6	8.2
Queue Length 50th (ft)	45	59	0	4	19
Queue Length 95th (ft)	112	205	58	17	53
Internal Link Dist (ft)	290	473			411
Turn Bay Length (ft)				300	
Base Capacity (vph)	1516	867	1007	398	1365
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.33	0.45	0.50	0.08	0.11
Intersection Summary					

HCM 6th Signalized Intersection Summary

11/18/2022

2: Pine Dr & Inspiration Dr
2027 Back+Project w/Pine Ext_Signal - PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	425	35	362	465	29	136
Future Volume (veh/h)	425	35	362	465	29	136
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	497	0	393	505	32	148
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	721	321	693	588	347	1005
Arrive On Green	0.20	0.00	0.37	0.37	0.04	0.54
Sat Flow, veh/h	3563	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	497	0	393	505	32	148
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	6.0	0.0	7.7	13.6	0.5	1.8
Cycle Q Clear(g_c), s	6.0	0.0	7.7	13.6	0.5	1.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	721	321	693	588	347	1005
V/C Ratio(X)	0.69	0.00	0.57	0.86	0.09	0.15
Avail Cap(c_a), veh/h	1391	619	771	653	476	1218
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	0.0	11.6	13.4	8.2	5.4
Incr Delay (d2), s/veh	1.2	0.0	0.8	10.4	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	2.7	5.5	0.1	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.2	0.0	12.3	23.8	8.3	5.4
LnGrp LOS	B	A	B	C	A	A
Approach Vol, veh/h	497		898			180
Approach Delay, s/veh	18.2		18.8			5.9
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.7	23.1			30.8	15.3
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	5.0	19.0			30.0	18.0
Max Q Clear Time (g_c+I1), s	2.5	15.6			3.8	8.0
Green Ext Time (p_c), s	0.0	1.5			0.8	1.4

Intersection Summary

























HCM 6th Ctrl Delay	17.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Timings
11/18/2022

3: SH-83/Parker Rd & Aurora Pkwy
2027 Back+Project w/Pine Ext_Signal - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	5	40	166	5	192	25	2250	332	240	2060	50
Future Volume (vph)	35	5	40	166	5	192	25	2250	332	240	2060	50
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4	8					2			6
Detector Phase	7	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	2.0	8.0	8.0	6.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	64.0	64.0	29.0	82.0	82.0
Total Split (%)	5.8%	13.3%	13.3%	9.2%	16.7%		9.2%	53.3%	53.3%	24.2%	68.3%	68.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 120











Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 90













Control Type: Actuated-Coordinated

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

				
Ø1	Ø2 (R)		Ø3	Ø4
29 s	64 s		11 s	16 s
				
Ø5	Ø6 (R)		Ø7	Ø8
11 s	82 s		7 s	20 s

Queues
11/18/2022

























3: SH-83/Parker Rd & Aurora Pkwy
2027 Back+Project w/Pine Ext_Signal - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	38	5	43	180	5	209	27	2446	361	261	2239	54
v/c Ratio	0.31	0.04	0.16	0.50	0.02	0.27	0.29	0.82	0.34	0.64	0.64	0.05
Control Delay	51.3	51.4	1.2	49.2	47.6	34.2	63.2	24.3	2.3	57.1	12.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.3	51.4	1.2	49.2	47.6	34.2	63.2	24.3	2.3	57.1	12.8	0.1
Queue Length 50th (ft)	25	4	0	63	4	73	20	547	0	100	390	0
Queue Length 95th (ft)	57	17	0	96	16	103	52	689	45	140	445	0
Internal Link Dist (ft)		328			3611			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	124	155	285	358	232	966	92	2970	1074	686	3502	1126
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.03	0.15	0.50	0.02	0.22	0.29	0.82	0.34	0.38	0.64	0.05
Intersection Summary												

HCM 6th Signalized Intersection Summary

11/18/2022

3: SH-83/Parker Rd & Aurora Pkwy
2027 Back+Project w/Pine Ext_Signal - PM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	5	40	166	5	192	25	2250	332	240	2060	50
Future Volume (veh/h)	35	5	40	166	5	192	25	2250	332	240	2060	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	5	43	180	5	209	27	2446	361	261	2239	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	125	106	462	187	547	53	3063	951	332	3401	1056
Arrive On Green	0.02	0.07	0.07	0.05	0.10	0.10	0.03	0.60	0.60	0.10	0.67	0.67
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	38	5	43	180	5	209	27	2446	361	261	2239	54
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	2.0	0.3	3.1	5.8	0.3	7.8	1.8	44.2	14.2	8.9	31.3	1.4
Cycle Q Clear(g_c), s	2.0	0.3	3.1	5.8	0.3	7.8	1.8	44.2	14.2	8.9	31.3	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	168	125	106	462	187	547	53	3063	951	332	3401	1056
V/C Ratio(X)	0.23	0.04	0.41	0.39	0.03	0.38	0.51	0.80	0.38	0.79	0.66	0.05
Avail Cap(c_a), veh/h	168	156	132	462	218	593	89	3063	951	691	3401	1056
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	52.4	53.7	48.5	48.7	41.9	57.4	18.4	12.4	53.0	11.9	6.9
Incr Delay (d2), s/veh	0.7	0.1	2.5	0.5	0.1	0.4	7.4	2.3	1.2	4.1	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.1	1.3	2.5	0.1	2.7	0.9	17.0	5.2	3.9	9.8	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	52.5	56.2	49.0	48.8	42.4	64.8	20.7	13.6	57.2	12.9	7.0
LnGrp LOS	D	D	E	D	D	D	E	C	B	E	B	A
Approach Vol, veh/h	86			394			2834			2554		
Approach Delay, s/veh	54.2			45.5			20.2			17.3		
Approach LOS	D			D			C			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.5	78.5	11.0	14.0	8.6	86.4	7.0	18.0				
Change Period (Y+Rc), s	5.0	6.5	5.0	6.0	5.0	6.5	5.0	6.0				
Max Green Setting (Gmax), s	24.0	57.5	6.0	10.0	6.0	75.5	2.0	14.0				
Max Q Clear Time (g_c+I1), s	10.9	46.2	7.8	5.1	3.8	33.3	4.0	9.8				
Green Ext Time (p_c), s	0.7	10.5	0.0	0.0	0.0	24.8	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	21.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	598	10	15	330	10	10	25	10	10	30	19
Future Vol, veh/h	12	598	10	15	330	10	10	25	10	10	30	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	650	11	16	359	11	11	27	11	11	33	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	370	0	0	661	0	0	910	1084	331	762	1084	185
Stage 1	-	-	-	-	-	-	682	682	-	397	397	-
Stage 2	-	-	-	-	-	-	228	402	-	365	687	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1185	-	-	923	-	-	230	216	665	294	216	826
Stage 1	-	-	-	-	-	-	406	448	-	600	602	-
Stage 2	-	-	-	-	-	-	754	599	-	627	446	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1185	-	-	923	-	-	193	210	665	255	210	826
Mov Cap-2 Maneuver	-	-	-	-	-	-	193	210	-	255	210	-
Stage 1	-	-	-	-	-	-	402	443	-	593	592	-
Stage 2	-	-	-	-	-	-	683	589	-	573	441	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.4	23.6	21
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	242	1185	-	-	923	-	-	288
HCM Lane V/C Ratio	0.202	0.011	-	-	0.018	-	-	0.223
HCM Control Delay (s)	23.6	8.1	-	-	9	-	-	21
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.8

Intersection						
Intersection Delay, s/veh	4.3					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		1	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	602		316		14	
Demand Flow Rate, veh/h	614		322		14	
Vehicles Circulating, veh/h	8		116		612	
Vehicles Exiting, veh/h	391		510		10	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	4.5		4.0		4.4	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.471	0.529	0.469	0.531	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	289	325	151	171	14	72
Cap Entry Lane, veh/h	1340	1410	1213	1287	844	1075
Entry HV Adj Factor	0.979	0.982	0.983	0.979	1.000	0.986
Flow Entry, veh/h	283	319	148	167	14	71
Cap Entry, veh/h	1312	1385	1193	1260	844	1061
V/C Ratio	0.216	0.230	0.124	0.133	0.017	0.067
Control Delay, s/veh	4.6	4.5	4.1	4.0	4.4	4.0
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	0	0	0	0

Intersection

Int Delay, s/veh 8.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	
Traffic Vol, veh/h	363	72	142	232	47	329
Future Vol, veh/h	363	72	142	232	47	329
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	395	78	154	252	51	358

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	473
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1085
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1085
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.4	22.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	609	-	-	1085	-
HCM Lane V/C Ratio	0.671	-	-	0.142	-
HCM Control Delay (s)	22.1	-	-	8.9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	5.1	-	-	0.5	-

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↱	↑↑	↱	
Traffic Vol, veh/h	644	48	22	345	28	12
Future Vol, veh/h	644	48	22	345	28	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	700	52	24	375	30	13

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	752
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	853
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	853
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	18.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	302	-	-	853	-
HCM Lane V/C Ratio	0.144	-	-	0.028	-
HCM Control Delay (s)	18.9	-	-	9.3	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection

Int Delay, s/veh 1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	
Traffic Vol, veh/h	609	47	26	336	30	16
Future Vol, veh/h	609	47	26	336	30	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	662	51	28	365	33	17

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	713
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	883
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	883
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

























Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	18
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	326	-	-	883	-
HCM Lane V/C Ratio	0.153	-	-	0.032	-
HCM Control Delay (s)	18	-	-	9.2	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection Capacity Worksheets:
2040 Background + Project
No Pine Drive
Extension

Timings
11/15/2022

1: Gartrell Rd & Aurora Pkwy
2040 Back+Project - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	112	84	280	282	520	86	375	200	145	275	134
Future Volume (vph)	245	112	84	280	282	520	86	375	200	145	275	134
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	24.8	15.7	15.7	29.0	15.8	15.8	24.5	16.1	16.1	28.6	19.9	19.9
Actuated g/C Ratio	0.35	0.22	0.22	0.41	0.22	0.22	0.35	0.23	0.23	0.41	0.28	0.28
v/c Ratio	0.56	0.15	0.20	0.54	0.38	0.83	0.22	0.50	0.41	0.38	0.30	0.26

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 70.5

Natural Cycle: 105

Control Type: Actuated-Uncoordinated









Maximum v/c Ratio: 0.83













Intersection Signal Delay: 19.2

Intersection Capacity Utilization 69.6%

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	266	122	91	301	303	559	93	408	217	158	299	146
v/c Ratio	0.56	0.15	0.20	0.54	0.38	0.83	0.22	0.50	0.41	0.38	0.30	0.26
Control Delay	19.8	24.1	3.2	18.5	25.8	20.3	14.3	26.8	6.4	16.0	22.5	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	24.1	3.2	18.5	25.8	20.3	14.3	26.8	6.4	16.0	22.5	5.7
Queue Length 50th (ft)	71	22	0	82	60	54	26	87	0	46	60	0
Queue Length 95th (ft)	149	49	18	169	108	#252	52	134	50	82	96	40
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	503	980	529	570	980	733	547	1496	794	482	1496	753
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.12	0.17	0.53	0.31	0.76	0.17	0.27	0.27	0.33	0.20	0.19

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/15/2022

1: Gartrell Rd & Aurora Pkwy
2040 Back+Project - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	245	112	84	280	282	520	86	375	200	145	275	134
Future Volume (veh/h)	245	112	84	280	282	520	86	375	200	145	275	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	266	122	91	301	303	0	93	408	217	158	299	146
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	501	589	262	575	646		424	885	395	401	1007	449
Arrive On Green	0.15	0.17	0.17	0.17	0.18	0.00	0.06	0.25	0.25	0.09	0.28	0.28
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	266	122	91	301	303	0	93	408	217	158	299	146
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	7.3	1.8	3.1	8.3	4.7	0.0	2.3	6.0	7.3	3.9	4.0	4.5
Cycle Q Clear(g_c), s	7.3	1.8	3.1	8.3	4.7	0.0	2.3	6.0	7.3	3.9	4.0	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	501	589	262	575	646		424	885	395	401	1007	449
V/C Ratio(X)	0.53	0.21	0.35	0.52	0.47		0.22	0.46	0.55	0.39	0.30	0.33
Avail Cap(c_a), veh/h	551	1102	491	596	1102		643	1682	750	559	1682	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.9	22.1	22.6	16.4	22.4	0.0	15.6	19.5	20.0	14.9	17.2	17.3
Incr Delay (d2), s/veh	0.3	0.2	0.8	0.3	0.5	0.0	0.1	0.8	2.5	0.2	0.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.7	1.1	3.0	1.8	0.0	0.8	2.3	2.7	1.3	1.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.2	22.2	23.4	16.7	22.9	0.0	15.7	20.3	22.5	15.2	17.5	18.2
LnGrp LOS	B	C	C	B	C		B	C	C	B	B	B
Approach Vol, veh/h		479			604			718			603	
Approach Delay, s/veh		19.7			19.8			20.4			17.1	
Approach LOS		B			B			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	21.3	14.3	16.2	7.5	23.4	13.3	17.1				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	5.9	9.3	10.3	5.1	4.3	6.5	9.3	6.7				
Green Ext Time (p_c), s	0.1	6.0	0.0	0.8	0.0	4.3	0.0	1.4				

Intersection Summary

HCM 6th Ctrl Delay 19.3

HCM 6th LOS B




Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

























Int Delay, s/veh 0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1006	0	0	455	0	5
Future Vol, veh/h	1006	0	0	455	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1130	0	0	607	0	13

Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 304 607
Stage 1	-	- 0 0
Stage 2	-	- 304 607
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 688 411
Stage 1	-	- - -
Stage 2	-	- 748 486
Platoon blocked, %	-	- -
Mov Cap-1 Maneuver	-	- 688 0
Mov Cap-2 Maneuver	-	- 688 0
Stage 1	-	- - 0
Stage 2	-	- 748 0

Approach	NB	SB
HCM Control Delay, s	0	
HCM LOS		-









Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	5	30	436	5	451	35	2685	220	236	2365	35
Future Volume (vph)	30	5	30	436	5	451	35	2685	220	236	2365	35
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4	8					2			6
Detector Phase	7	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	2.0	8.0	8.0	6.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	64.0	64.0	29.0	82.0	82.0
Total Split (%)	5.8%	13.3%	13.3%	9.2%	16.7%		9.2%	53.3%	53.3%	24.2%	68.3%	68.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	8.6	9.2	9.2	20.7	16.1	36.2	6.0	67.1	67.1	15.1	80.6	80.6
Actuated g/C Ratio	0.07	0.08	0.08	0.17	0.13	0.30	0.05	0.56	0.56	0.13	0.67	0.67
v/c Ratio	0.31	0.03	0.12	1.06	0.02	0.58	0.43	1.03	0.24	0.60	0.75	0.03

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.06
 Intersection Signal Delay: 39.4
 Intersection Capacity Utilization 92.3%
 Analysis Period (min) 15

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

 Ø1	 Ø2 (R)	 Ø3	 Ø4
29 s	64 s	11 s	16 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
11 s	82 s	7 s	20 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	33	5	33	474	5	490	38	2918	239	257	2571	38
v/c Ratio	0.31	0.03	0.12	1.06	0.02	0.58	0.43	1.03	0.24	0.60	0.75	0.03
Control Delay	53.1	51.2	0.9	107.0	47.4	38.6	70.5	51.1	2.5	54.9	15.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	51.2	0.9	107.0	47.4	38.6	70.5	51.1	2.5	54.9	15.9	0.1
Queue Length 50th (ft)	22	4	0	~235	4	187	29	~893	0	98	509	0
Queue Length 95th (ft)	51	17	0	#352	16	235	67	#1043	40	135	575	0
Internal Link Dist (ft)		328			3611			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	106	155	285	446	250	1047	89	2843	990	686	3414	1101
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.03	0.12	1.06	0.02	0.47	0.43	1.03	0.24	0.37	0.75	0.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

























Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/15/2022

3: SH-83/Parker Rd & Aurora Pkwy

2040 Back+Project - AM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	5	30	436	5	451	35	2685	220	236	2365	35
Future Volume (veh/h)	30	5	30	436	5	451	35	2685	220	236	2365	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	5	33	474	5	490	38	2918	239	257	2571	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	156	132	508	218	590	64	2984	926	328	3285	1020
Arrive On Green	0.02	0.08	0.08	0.05	0.12	0.12	0.04	0.58	0.58	0.09	0.64	0.64
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	33	5	33	474	5	490	38	2918	239	257	2571	38
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	2.0	0.3	2.3	6.0	0.3	14.0	2.5	66.5	8.9	8.7	43.4	1.1
Cycle Q Clear(g_c), s	2.0	0.3	2.3	6.0	0.3	14.0	2.5	66.5	8.9	8.7	43.4	1.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	165	156	132	508	218	590	64	2984	926	328	3285	1020
V/C Ratio(X)	0.20	0.03	0.25	0.93	0.02	0.83	0.59	0.98	0.26	0.78	0.78	0.04
Avail Cap(c_a), veh/h	165	156	132	508	218	590	89	2984	926	691	3285	1020
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	50.6	51.5	52.7	46.9	45.3	57.0	24.2	12.2	53.1	15.4	7.8
Incr Delay (d2), s/veh	0.6	0.1	1.0	24.5	0.0	9.7	8.5	12.1	0.7	4.1	1.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.1	1.0	6.1	0.1	7.7	1.3	28.2	3.3	3.8	14.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.1	50.6	52.5	77.2	47.0	55.0	65.5	36.3	12.9	57.3	17.3	7.9
LnGrp LOS	D	D	D	E	D	D	E	D	B	E	B	A
Approach Vol, veh/h	71			969			3195			2866		
Approach Delay, s/veh	51.2			65.8			34.9			20.8		
Approach LOS	D			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.4	76.6	11.0	16.0	9.3	83.7	7.0	20.0				
Change Period (Y+Rc), s	5.0	6.5	5.0	6.0	5.0	6.5	5.0	6.0				
Max Green Setting (Gmax), s	24.0	57.5	6.0	10.0	6.0	75.5	2.0	14.0				
Max Q Clear Time (g_c+I1), s	10.7	68.5	8.0	4.3	4.5	45.4	4.0	16.0				
Green Ext Time (p_c), s	0.7	0.0	0.0	0.0	0.0	23.3	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	33.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	301	14	15	413	10	11	30	20	10	35	21
Future Vol, veh/h	13	301	14	15	413	10	11	30	20	10	35	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	327	15	16	449	11	12	33	22	11	38	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	460	0	0	342	0	0	639	855	171	695	857	230
Stage 1	-	-	-	-	-	-	363	363	-	487	487	-
Stage 2	-	-	-	-	-	-	276	492	-	208	370	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1097	-	-	1214	-	-	361	294	843	329	293	772
Stage 1	-	-	-	-	-	-	628	623	-	531	549	-
Stage 2	-	-	-	-	-	-	707	546	-	775	619	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1097	-	-	1214	-	-	308	286	843	287	285	772
Mov Cap-2 Maneuver	-	-	-	-	-	-	308	286	-	287	285	-
Stage 1	-	-	-	-	-	-	620	615	-	524	542	-
Stage 2	-	-	-	-	-	-	630	539	-	706	611	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.3	16.8	17.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	371	1097	-	-	1214	-	-	357
HCM Lane V/C Ratio	0.179	0.013	-	-	0.013	-	-	0.201
HCM Control Delay (s)	16.8	8.3	-	-	8	-	-	17.6
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.7

Intersection						
Intersection Delay, s/veh	6.0					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	506		609		17	347
Demand Flow Rate, veh/h	516		621		17	354
Vehicles Circulating, veh/h	14		181		510	621
Vehicles Exiting, veh/h	961		346		20	181
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	4.2		5.5		4.1	9.7
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.471	0.529	0.470	0.530	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	243	273	292	329	17	354
Cap Entry Lane, veh/h	1333	1403	1143	1218	921	838
Entry HV Adj Factor	0.980	0.983	0.980	0.981	0.994	0.980
Flow Entry, veh/h	238	268	286	323	17	347
Cap Entry, veh/h	1305	1380	1120	1195	915	821
V/C Ratio	0.182	0.195	0.256	0.270	0.018	0.423
Control Delay, s/veh	4.3	4.2	5.6	5.5	4.1	9.7
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	0	2

Intersection

Int Delay, s/veh 2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	277	30	17	475	105	52
Future Vol, veh/h	277	30	17	475	105	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	301	33	18	516	114	57

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	334
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1222
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1222
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	15.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	503	-	-	1222	-
HCM Lane V/C Ratio	0.339	-	-	0.015	-
HCM Control Delay (s)	15.8	-	-	8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.5	-	-	0	-

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↖	
Traffic Vol, veh/h	308	21	9	435	58	26
Future Vol, veh/h	308	21	9	435	58	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	335	23	10	473	63	28

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	358
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1197
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1197
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	13.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	503	-	-	1197	-
HCM Lane V/C Ratio	0.182	-	-	0.008	-
HCM Control Delay (s)	13.7	-	-	8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.7	-	-	0	-

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↱	↑↑	↱	
Traffic Vol, veh/h	318	16	9	400	44	26
Future Vol, veh/h	318	16	9	400	44	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	346	17	10	435	48	28

























Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	363
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1192
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1192
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	527	-	-	1192	-
HCM Lane V/C Ratio	0.144	-	-	0.008	-
HCM Control Delay (s)	13	-	-	8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Timings
11/15/2022

1: Gartrell Rd & Aurora Pkwy
2040 Back+Project - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	239	138	275	193	270	115	360	320	435	400	109
Future Volume (vph)	212	239	138	275	193	270	115	360	320	435	400	109
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	22.9	11.5	11.5	24.3	12.2	12.2	25.0	16.1	16.1	32.7	22.4	22.4
Actuated g/C Ratio	0.33	0.17	0.17	0.35	0.18	0.18	0.36	0.23	0.23	0.47	0.32	0.32
v/c Ratio	0.49	0.44	0.39	0.63	0.33	0.56	0.30	0.47	0.55	0.91	0.38	0.20

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 69

Natural Cycle: 105

Control Type: Actuated-Uncoordinated









Maximum v/c Ratio: 0.91













Intersection Signal Delay: 21.3

Intersection Capacity Utilization 74.9%

Analysis Period (min) 15

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	230	260	150	296	208	290	125	391	348	473	435	118
v/c Ratio	0.49	0.44	0.39	0.63	0.33	0.56	0.30	0.47	0.55	0.91	0.38	0.20
Control Delay	19.3	29.4	8.6	22.8	27.7	8.6	12.8	24.9	6.4	40.6	20.7	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	29.4	8.6	22.8	27.7	8.6	12.8	24.9	6.4	40.6	20.7	4.4
Queue Length 50th (ft)	65	53	0	88	42	0	28	74	0	132	76	0
Queue Length 95th (ft)	130	94	47	168	77	62	62	122	60	#287	133	30
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	510	984	542	495	984	643	529	1501	871	519	1501	748
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.26	0.28	0.60	0.21	0.45	0.24	0.26	0.40	0.91	0.29	0.16

























Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/15/2022

1: Gartrell Rd & Aurora Pkwy
2040 Back+Project - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	239	138	275	193	270	115	360	320	435	400	109
Future Volume (veh/h)	212	239	138	275	193	270	115	360	320	435	400	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	230	260	150	296	208	0	125	391	348	473	435	118
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	454	497	221	430	547		466	1050	468	510	1328	592
Arrive On Green	0.13	0.14	0.14	0.15	0.15	0.00	0.07	0.30	0.30	0.15	0.37	0.37
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	230	260	150	296	208	0	125	391	348	473	435	118
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	8.0	5.1	6.7	10.6	3.9	0.0	3.6	6.5	14.7	11.0	6.5	3.7
Cycle Q Clear(g_c), s	8.0	5.1	6.7	10.6	3.9	0.0	3.6	6.5	14.7	11.0	6.5	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	454	497	221	430	547		466	1050	468	510	1328	592
V/C Ratio(X)	0.51	0.52	0.68	0.69	0.38		0.27	0.37	0.74	0.93	0.33	0.20
Avail Cap(c_a), veh/h	479	908	404	430	908		605	1386	618	510	1386	618
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	29.7	30.4	22.9	28.3	0.0	16.1	20.7	23.6	18.3	16.6	15.8
Incr Delay (d2), s/veh	0.3	0.9	3.6	3.8	0.4	0.0	0.1	0.5	5.6	22.9	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	2.1	2.7	4.6	1.6	0.0	1.3	2.5	5.8	8.0	2.4	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.9	30.5	34.0	26.7	28.7	0.0	16.2	21.2	29.3	41.2	16.9	16.1
LnGrp LOS	C	C	C	C	C		B	C	C	D	B	B
Approach Vol, veh/h		640			504			864			1026	
Approach Delay, s/veh		28.6			27.5			23.7			28.0	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	28.0	15.0	16.4	9.2	33.8	13.9	17.4				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	16.7	12.6	8.7	5.6	8.5	10.0	5.9				
Green Ext Time (p_c), s	0.0	5.2	0.0	1.5	0.0	5.5	0.0	0.9				

Intersection Summary

HCM 6th Ctrl Delay 26.8
HCM 6th LOS C




Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

Int Delay, s/veh 0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	626	0	5	902	5	5
Future Vol, veh/h	626	0	5	902	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	75	75	38	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	703	0	7	1203	13	13

























Major/Minor	Major1	Minor2
Conflicting Flow All	0	0 609 1210
Stage 1	-	- 0 0
Stage 2	-	- 609 1210
Critical Hdwy	-	- 6.42 6.52
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	-	- 5.42 5.52
Follow-up Hdwy	-	- 3.518 4.018
Pot Cap-1 Maneuver	-	- 458 183
Stage 1	-	- - -
Stage 2	-	- 543 255
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	- 458 0
Mov Cap-2 Maneuver	-	- 458 0
Stage 1	-	- - 0
Stage 2	-	- 543 0

Approach	NB	SB
HCM Control Delay, s	0	13.3
HCM LOS		B

Minor Lane/Major Mvmt	NBT	NBR	SBLn1
Capacity (veh/h)	-	-	458
HCM Lane V/C Ratio	-	-	0.057
HCM Control Delay (s)	-	-	13.3
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.2

Timings
11/15/2022









3: SH-83/Parker Rd & Aurora Pkwy
2040 Back+Project - PM Peak Hour













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	5	45	308	5	336	30	2280	527	408	2960	60
Future Volume (vph)	40	5	45	308	5	336	30	2280	527	408	2960	60
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4	8					2			6
Detector Phase	7	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	2.0	8.0	8.0	6.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	64.0	64.0	29.0	82.0	82.0
Total Split (%)	5.8%	13.3%	13.3%	9.2%	16.7%		9.2%	53.3%	53.3%	24.2%	68.3%	68.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max
Act Effect Green (s)	10.8	9.6	9.6	19.7	13.9	39.5	6.0	62.4	62.4	20.6	81.4	81.4
Actuated g/C Ratio	0.09	0.08	0.08	0.16	0.12	0.33	0.05	0.52	0.52	0.17	0.68	0.68
v/c Ratio	0.33	0.03	0.17	0.87	0.02	0.40	0.38	0.94	0.56	0.75	0.93	0.06

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 31.3
 Intersection Capacity Utilization 92.2%
 Analysis Period (min) 15

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

 Ø1	 Ø2 (R)	 Ø3	 Ø4
29 s	64 s	11 s	16 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
11 s	82 s	7 s	20 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	43	5	49	335	5	365	33	2478	573	443	3217	65
v/c Ratio	0.33	0.03	0.17	0.87	0.02	0.40	0.38	0.94	0.56	0.75	0.93	0.06
Control Delay	51.6	51.2	1.4	69.4	47.4	32.0	67.6	36.2	7.2	55.4	24.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	51.2	1.4	69.4	47.4	32.0	67.6	36.2	7.2	55.4	24.9	0.2
Queue Length 50th (ft)	28	4	0	122	4	121	25	664	59	168	~871	0
Queue Length 95th (ft)	62	17	0	#202	16	163	60	#835	166	220	#1036	2
Internal Link Dist (ft)		328			3611			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	132	155	285	387	217	970	88	2643	1029	686	3450	1111
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.03	0.17	0.87	0.02	0.38	0.38	0.94	0.56	0.65	0.93	0.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

























Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/15/2022

3: SH-83/Parker Rd & Aurora Pkwy

2040 Back+Project - PM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	45	308	5	336	30	2280	527	408	2960	60
Future Volume (veh/h)	40	5	45	308	5	336	30	2280	527	408	2960	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	49	335	5	365	33	2478	573	443	3217	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	156	132	505	218	742	59	2705	840	516	3298	1024
Arrive On Green	0.02	0.08	0.08	0.05	0.12	0.12	0.03	0.53	0.53	0.15	0.65	0.65
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	43	5	49	335	5	365	33	2478	573	443	3217	65
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	2.0	0.3	3.5	6.0	0.3	13.3	2.2	53.2	31.9	15.0	72.4	1.8
Cycle Q Clear(g_c), s	2.0	0.3	3.5	6.0	0.3	13.3	2.2	53.2	31.9	15.0	72.4	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	174	156	132	505	218	742	59	2705	840	516	3298	1024
V/C Ratio(X)	0.25	0.03	0.37	0.66	0.02	0.49	0.56	0.92	0.68	0.86	0.98	0.06
Avail Cap(c_a), veh/h	174	156	132	505	218	742	89	2705	840	691	3298	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.9	50.6	52.0	49.9	46.9	37.2	57.1	25.8	20.8	49.8	20.3	7.8
Incr Delay (d2), s/veh	0.7	0.1	1.7	3.3	0.0	0.5	7.9	6.2	4.5	8.2	10.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.1	1.5	2.3	0.1	4.6	1.1	22.1	12.5	6.8	26.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	50.6	53.8	53.2	47.0	37.7	65.0	32.0	25.2	58.0	31.3	8.0
LnGrp LOS	D	D	D	D	D	D	E	C	C	E	C	A
Approach Vol, veh/h	97				705				3084			
Approach Delay, s/veh	52.2				45.1				31.1			
Approach LOS	D				D				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.9	70.1	11.0	16.0	9.0	84.0	7.0	20.0				
Change Period (Y+Rc), s	5.0	6.5	5.0	6.0	5.0	6.5	5.0	6.0				
Max Green Setting (Gmax), s	24.0	57.5	6.0	10.0	6.0	75.5	2.0	14.0				
Max Q Clear Time (g_c+I1), s	17.0	55.2	8.0	5.5	4.2	74.4	4.0	15.3				
Green Ext Time (p_c), s	0.9	2.2	0.0	0.0	0.0	1.1	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	34.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	319	13	20	226	10	15	40	15	10	35	19
Future Vol, veh/h	12	319	13	20	226	10	15	40	15	10	35	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	347	14	22	246	11	16	43	16	11	38	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	257	0	0	361	0	0	566	681	181	517	683	129
Stage 1	-	-	-	-	-	-	380	380	-	296	296	-
Stage 2	-	-	-	-	-	-	186	301	-	221	387	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1305	-	-	1194	-	-	407	371	831	441	370	897
Stage 1	-	-	-	-	-	-	614	612	-	688	667	-
Stage 2	-	-	-	-	-	-	798	664	-	761	608	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1305	-	-	1194	-	-	358	361	831	384	360	897
Mov Cap-2 Maneuver	-	-	-	-	-	-	358	361	-	384	360	-
Stage 1	-	-	-	-	-	-	608	606	-	681	655	-
Stage 2	-	-	-	-	-	-	721	652	-	686	602	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.6	15.8	14.6
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	410	1305	-	-	1194	-	-	443
HCM Lane V/C Ratio	0.186	0.01	-	-	0.018	-	-	0.157
HCM Control Delay (s)	15.8	7.8	-	-	8.1	-	-	14.6
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.6

Intersection						
Intersection Delay, s/veh	5.9					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		1	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	902		338		20	
Demand Flow Rate, veh/h	919		345		20	
Vehicles Circulating, veh/h	18		443		919	
Vehicles Exiting, veh/h	658		496		18	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	5.7		5.7		5.9	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.470	0.530	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	432	487	162	183	20	326
Cap Entry Lane, veh/h	1328	1399	898	974	650	1055
Entry HV Adj Factor	0.981	0.981	0.982	0.980	1.000	0.981
Flow Entry, veh/h	424	478	159	179	20	320
Cap Entry, veh/h	1302	1372	882	955	650	1035
V/C Ratio	0.325	0.348	0.180	0.188	0.031	0.309
Control Delay, s/veh	5.7	5.8	5.9	5.6	5.9	6.6
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	2	1	1	0	1

Intersection

Int Delay, s/veh 1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↔	↑↑	↔	
Traffic Vol, veh/h	376	87	38	251	50	24
Future Vol, veh/h	376	87	38	251	50	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	409	95	41	273	54	26

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	504
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1057
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1057
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	444	-	-	1057	-
HCM Lane V/C Ratio	0.181	-	-	0.039	-
HCM Control Delay (s)	14.9	-	-	8.5	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↱		↱	↑↑	↱	
Traffic Vol, veh/h	334	66	30	249	39	18
Future Vol, veh/h	334	66	30	249	39	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	363	72	33	271	42	20
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	435	0	601	218
Stage 1	-	-	-	-	399	-
Stage 2	-	-	-	-	202	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1121	-	432	786
Stage 1	-	-	-	-	647	-
Stage 2	-	-	-	-	812	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1121	-	419	786
Mov Cap-2 Maneuver	-	-	-	-	419	-
Stage 1	-	-	-	-	647	-
Stage 2	-	-	-	-	788	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.9		13.4	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	491	-	-	1121	-	
HCM Lane V/C Ratio	0.126	-	-	0.029	-	
HCM Control Delay (s)	13.4	-	-	8.3	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-	

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↔	↑↑	↔	
Traffic Vol, veh/h	300	52	30	247	33	18
Future Vol, veh/h	300	52	30	247	33	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	326	57	33	268	36	20

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	383
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1172
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1172
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

























Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	534	-	-	1172	-
HCM Lane V/C Ratio	0.104	-	-	0.028	-
HCM Control Delay (s)	12.5	-	-	8.2	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection Capacity Worksheets:
2040 Background + Project
WITH Pine Drive
Extension

Timings
11/18/2022

1: Gartrell Rd & Aurora Pkwy
2040 Back+Project w/Pine Ext_Signal - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	368	172	91	280	282	520	90	270	140	145	105	337
Future Volume (vph)	368	172	91	280	282	520	90	270	140	145	105	337
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

Intersection Summary









Cycle Length: 90













Actuated Cycle Length: 67.4

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
15 s	35 s	15 s	25 s
			
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	400	187	99	301	303	559	98	293	152	158	114	366
v/c Ratio	0.73	0.22	0.21	0.55	0.39	0.80	0.22	0.42	0.35	0.36	0.13	0.55
Control Delay	23.7	22.6	3.6	16.7	24.6	16.0	14.7	26.7	7.5	16.0	22.6	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.7	22.6	3.6	16.7	24.6	16.0	14.7	26.7	7.5	16.0	22.6	6.5
Queue Length 50th (ft)	104	33	0	73	55	36	25	56	0	42	20	0
Queue Length 95th (ft)	#245	65	22	150	99	#185	55	100	45	83	43	63
Internal Link Dist (ft)	846		846		1151		535					
Turn Bay Length (ft)	180	475		260	230		260	145		435		
Base Capacity (vph)	551	1013	542	587	1013	771	569	1547	777	504	1547	898
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.18	0.18	0.51	0.30	0.73	0.17	0.19	0.20	0.31	0.07	0.41

Intersection Summary

























95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/18/2022

1: Gartrell Rd & Aurora Pkwy

2040 Back+Project w/Pine Ext_Signal - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	368	172	91	280	282	520	90	270	140	145	105	337
Future Volume (veh/h)	368	172	91	280	282	520	90	270	140	145	105	337
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	400	187	99	301	303	0	98	293	152	158	114	366
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	508	586	261	541	567		459	938	419	459	1047	467
Arrive On Green	0.17	0.16	0.16	0.17	0.16	0.00	0.06	0.26	0.26	0.09	0.29	0.29
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	400	187	99	301	303	0	98	293	152	158	114	366
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	11.0	3.0	3.5	8.7	5.0	0.0	2.5	4.2	5.0	4.0	1.5	13.5
Cycle Q Clear(g_c), s	11.0	3.0	3.5	8.7	5.0	0.0	2.5	4.2	5.0	4.0	1.5	13.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	508	586	261	541	567		459	938	419	459	1047	467
V/C Ratio(X)	0.79	0.32	0.38	0.56	0.53		0.21	0.31	0.36	0.34	0.11	0.78
Avail Cap(c_a), veh/h	508	1061	472	550	1061		662	1619	722	608	1619	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.2	23.4	23.7	17.4	24.6	0.0	15.4	18.8	19.1	14.8	16.4	20.6
Incr Delay (d2), s/veh	7.4	0.3	0.9	0.7	0.8	0.0	0.1	0.4	1.1	0.2	0.1	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	1.2	1.3	3.3	2.0	0.0	0.9	1.6	1.8	1.4	0.5	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	23.7	24.6	18.1	25.4	0.0	15.5	19.2	20.2	14.9	16.5	26.8
LnGrp LOS	C	C	C	B	C		B	B	C	B	B	C
Approach Vol, veh/h		686			604			543			638	
Approach Delay, s/veh		25.5			21.7			18.8			22.0	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	22.8	14.7	16.5	7.7	24.8	15.0	16.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	6.0	7.0	10.7	5.5	4.5	15.5	13.0	7.0				
Green Ext Time (p_c), s	0.1	4.3	0.0	1.1	0.0	3.3	0.0	1.4				

Intersection Summary















HCM 6th Ctrl Delay 22.2

HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations	  		 	 	
Traffic Volume (vph)	805	183	275	43	209
Future Volume (vph)	805	183	275	43	209
Turn Type	Prot	NA	Perm	pm+pt	NA
Protected Phases	8	2		1	6
Permitted Phases			2	6	
Detector Phase	8	2	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	24.0	24.0	24.0	11.0	24.0
Total Split (s)	25.0	24.0	24.0	11.0	35.0
Total Split (%)	41.7%	40.0%	40.0%	18.3%	58.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode	None	Min	Min	None	Min

Intersection Summary





Cycle Length: 60






Actuated Cycle Length: 45.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Pine Dr & Inspiration Dr

 Ø1	 Ø2	
11 s	24 s	
 Ø6		 Ø8
35 s		25 s

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	902	199	299	47	227
v/c Ratio	0.72	0.38	0.46	0.12	0.34
Control Delay	18.3	17.8	5.1	9.9	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	17.8	5.1	9.9	12.0
Queue Length 50th (ft)	77	39	0	8	45
Queue Length 95th (ft)	#245	105	47	23	82
Internal Link Dist (ft)	290	473			411
Turn Bay Length (ft)				300	
Base Capacity (vph)	1513	776	834	397	1251
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.26	0.36	0.12	0.18












Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/18/2022

2: Pine Dr & Inspiration Dr
2040 Back+Project w/Pine Ext_Signal - AM Peak Hour

























						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	805	25	183	275	43	209
Future Volume (veh/h)	805	25	183	275	43	209
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	900	0	199	299	47	227
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1132	504	464	393	384	795
Arrive On Green	0.32	0.00	0.25	0.25	0.05	0.43
Sat Flow, veh/h	3563	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	900	0	199	299	47	227
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	10.8	0.0	4.2	8.2	0.8	3.7
Cycle Q Clear(g_c), s	10.8	0.0	4.2	8.2	0.8	3.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1132	504	464	393	384	795
V/C Ratio(X)	0.79	0.00	0.43	0.76	0.12	0.29
Avail Cap(c_a), veh/h	1449	645	721	611	487	1161
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.5	0.0	14.8	16.3	10.9	8.8
Incr Delay (d2), s/veh	2.4	0.0	0.6	3.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	1.6	2.9	0.3	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.0	0.0	15.4	19.3	11.0	9.0
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h	900		498			274
Approach Delay, s/veh	17.0		17.8			9.3
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.3	17.6			25.9	20.8
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	5.0	18.0			29.0	19.0
Max Q Clear Time (g_c+I1), s	2.8	10.2			5.7	12.8
Green Ext Time (p_c), s	0.0	1.4			1.3	2.1
Intersection Summary						
HCM 6th Ctrl Delay			16.0			
HCM 6th LOS			B			

Notes

User approved volume balancing among the lanes for turning movement.

Timings
11/18/2022

3: SH-83/Parker Rd & Aurora Pkwy
2040 Back+Project w/Pine Ext_Signal - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	5	30	454	5	455	35	2685	223	234	2365	35
Future Volume (vph)	30	5	30	454	5	455	35	2685	223	234	2365	35
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4	8					2			6
Detector Phase	7	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	2.0	8.0	8.0	6.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	64.0	64.0	29.0	82.0	82.0
Total Split (%)	5.8%	13.3%	13.3%	9.2%	16.7%		9.2%	53.3%	53.3%	24.2%	68.3%	68.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 120











Actuated Cycle Length: 120













Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

				
Ø1	Ø2 (R)		Ø3	Ø4
29 s	64 s		11 s	16 s
				
Ø5	Ø6 (R)		Ø7	Ø8
11 s	82 s		7 s	20 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	33	5	33	493	5	495	38	2918	242	254	2571	38
v/c Ratio	0.31	0.03	0.12	1.10	0.02	0.59	0.43	1.03	0.24	0.59	0.75	0.03
Control Delay	53.1	51.2	0.9	118.1	47.4	38.6	70.7	51.5	2.5	54.7	16.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	51.2	0.9	118.1	47.4	38.6	70.7	51.5	2.5	54.7	16.0	0.1
Queue Length 50th (ft)	22	4	0	~253	4	189	29	~892	0	96	509	0
Queue Length 95th (ft)	51	17	0	#369	16	236	67	#1049	40	133	575	0
Internal Link Dist (ft)		328			3611			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	106	155	285	448	251	1049	88	2840	991	686	3412	1100
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.03	0.12	1.10	0.02	0.47	0.43	1.03	0.24	0.37	0.75	0.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

























95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/18/2022

3: SH-83/Parker Rd & Aurora Pkwy
2040 Back+Project w/Pine Ext_Signal - AM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	5	30	454	5	455	35	2685	223	234	2365	35
Future Volume (veh/h)	30	5	30	454	5	455	35	2685	223	234	2365	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	5	33	493	5	495	38	2918	242	254	2571	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	156	132	508	218	587	64	2988	928	325	3285	1020
Arrive On Green	0.02	0.08	0.08	0.05	0.12	0.12	0.04	0.59	0.59	0.09	0.64	0.64
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	33	5	33	493	5	495	38	2918	242	254	2571	38
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	2.0	0.3	2.3	6.0	0.3	14.0	2.5	66.4	9.0	8.6	43.4	1.1
Cycle Q Clear(g_c), s	2.0	0.3	2.3	6.0	0.3	14.0	2.5	66.4	9.0	8.6	43.4	1.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	165	156	132	508	218	587	64	2988	928	325	3285	1020
V/C Ratio(X)	0.20	0.03	0.25	0.97	0.02	0.84	0.59	0.98	0.26	0.78	0.78	0.04
Avail Cap(c_a), veh/h	165	156	132	508	218	587	89	2988	928	691	3285	1020
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	50.6	51.5	53.0	46.9	45.5	57.0	24.1	12.2	53.2	15.4	7.8
Incr Delay (d2), s/veh	0.6	0.1	1.0	32.5	0.0	10.7	8.5	11.8	0.7	4.1	1.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.1	1.0	6.9	0.1	7.9	1.3	28.1	3.3	3.8	14.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.1	50.6	52.5	85.5	47.0	56.2	65.5	35.9	12.9	57.3	17.3	7.9
LnGrp LOS	D	D	D	F	D	E	E	D	B	E	B	A
Approach Vol, veh/h	71			993			3198			2863		
Approach Delay, s/veh	51.2			70.7			34.5			20.7		
Approach LOS	D			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.3	76.7	11.0	16.0	9.3	83.7	7.0	20.0				
Change Period (Y+Rc), s	5.0	6.5	5.0	6.0	5.0	6.5	5.0	6.0				
Max Green Setting (Gmax), s	24.0	57.5	6.0	10.0	6.0	75.5	2.0	14.0				
Max Q Clear Time (g_c+I1), s	10.6	68.4	8.0	4.3	4.5	45.4	4.0	16.0				
Green Ext Time (p_c), s	0.6	0.0	0.0	0.0	0.0	23.3	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 34.2
HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	456	10	15	599	10	10	30	20	10	35	21
Future Vol, veh/h	13	456	10	15	599	10	10	30	20	10	35	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	496	11	16	651	11	11	33	22	11	38	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	662	0	0	507	0	0	907	1224	254	982	1224	331
Stage 1	-	-	-	-	-	-	530	530	-	689	689	-
Stage 2	-	-	-	-	-	-	377	694	-	293	535	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	922	-	-	1054	-	-	231	178	745	203	178	665
Stage 1	-	-	-	-	-	-	500	525	-	402	445	-
Stage 2	-	-	-	-	-	-	616	442	-	691	522	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	922	-	-	1054	-	-	181	173	745	165	173	665
Mov Cap-2 Maneuver	-	-	-	-	-	-	181	173	-	165	173	-
Stage 1	-	-	-	-	-	-	493	517	-	396	438	-
Stage 2	-	-	-	-	-	-	535	435	-	619	514	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	26.1	28.5
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	235	922	-	-	1054	-	-	224
HCM Lane V/C Ratio	0.278	0.015	-	-	0.015	-	-	0.32
HCM Control Delay (s)	26.1	9	-	-	8.5	-	-	28.5
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1.1	0	-	-	0	-	-	1.3

Intersection						
Intersection Delay, s/veh	6.0					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	497		589		17	347
Demand Flow Rate, veh/h	506		600		17	354
Vehicles Circulating, veh/h	14		181		500	600
Vehicles Exiting, veh/h	940		336		20	181
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	4.2		5.4		4.1	9.4
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.470	0.530	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	238	268	282	318	17	354
Cap Entry Lane, veh/h	1333	1403	1143	1218	928	853
Entry HV Adj Factor	0.981	0.982	0.981	0.981	0.994	0.980
Flow Entry, veh/h	233	263	277	312	17	347
Cap Entry, veh/h	1307	1378	1121	1194	923	836
V/C Ratio	0.179	0.191	0.247	0.261	0.018	0.415
Control Delay, s/veh	4.2	4.2	5.5	5.4	4.1	9.4
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	0	2

Intersection

Int Delay, s/veh 7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	285	29	182	480	76	195
Future Vol, veh/h	285	29	182	480	76	195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	310	32	198	522	83	212

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	342
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1214
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1214
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	26.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	451	-	-	1214	-
HCM Lane V/C Ratio	0.653	-	-	0.163	-
HCM Control Delay (s)	26.8	-	-	8.5	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	4.6	-	-	0.6	-

Intersection

Int Delay, s/veh 0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↱	↑↑	↱	
Traffic Vol, veh/h	465	15	7	620	42	18
Future Vol, veh/h	465	15	7	620	42	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	505	16	8	674	46	20

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	521
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1041
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1041
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	17.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	356	-	-	1041	-
HCM Lane V/C Ratio	0.183	-	-	0.007	-
HCM Control Delay (s)	17.4	-	-	8.5	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.7	-	-	0	-

Intersection

Int Delay, s/veh 1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↖	
Traffic Vol, veh/h	469	15	8	586	40	22
Future Vol, veh/h	469	15	8	586	40	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	510	16	9	637	43	24

























Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	526
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1037
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1037
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	16.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	374	-	-	1037	-
HCM Lane V/C Ratio	0.18	-	-	0.008	-
HCM Control Delay (s)	16.7	-	-	8.5	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Timings
11/18/2022

1: Gartrell Rd & Aurora Pkwy
2040 Back+Project w/Pine Ext_Signal - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	347	304	141	275	193	270	122	195	170	435	290	236
Future Volume (vph)	347	304	141	275	193	270	122	195	170	435	290	236
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0	3.0	10.0	10.0
Minimum Split (s)	9.5	38.0	38.0	9.5	39.0	39.0	14.0	39.0	39.0	9.5	40.0	40.0
Total Split (s)	15.0	25.0	25.0	15.0	25.0	25.0	15.0	35.0	35.0	15.0	35.0	35.0
Total Split (%)	16.7%	27.8%	27.8%	16.7%	27.8%	27.8%	16.7%	38.9%	38.9%	16.7%	38.9%	38.9%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min

Intersection Summary









Cycle Length: 90













Actuated Cycle Length: 66.7

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Gartrell Rd & Aurora Pkwy

			
Ø1	Ø2	Ø3	Ø4
15 s	35 s	15 s	25 s
			
Ø5	Ø6	Ø7	Ø8
15 s	35 s	15 s	25 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	377	330	153	296	208	290	133	212	185	473	315	257
v/c Ratio	0.71	0.47	0.35	0.61	0.32	0.55	0.32	0.32	0.42	0.90	0.33	0.42
Control Delay	23.5	26.9	7.4	19.7	25.4	8.0	14.3	25.2	7.4	40.7	22.7	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	26.9	7.4	19.7	25.4	8.0	14.3	25.2	7.4	40.7	22.7	5.9
Queue Length 50th (ft)	100	62	0	74	37	0	30	38	0	136	54	0
Queue Length 95th (ft)	#213	111	44	153	73	59	68	72	47	#283	103	54
Internal Link Dist (ft)		846			846			1151			535	
Turn Bay Length (ft)	180		475	260		230	260		145	435		
Base Capacity (vph)	541	1015	557	514	1015	655	519	1550	797	525	1550	837
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.33	0.27	0.58	0.20	0.44	0.26	0.14	0.23	0.90	0.20	0.31

Intersection Summary

























95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/18/2022

1: Gartrell Rd & Aurora Pkwy

2040 Back+Project w/Pine Ext_Signal - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	347	304	141	275	193	270	122	195	170	435	290	236
Future Volume (veh/h)	347	304	141	275	193	270	122	195	170	435	290	236
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	377	330	153	296	208	0	133	212	185	473	315	257
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	538	577	257	476	559		419	683	305	554	997	445
Arrive On Green	0.17	0.16	0.16	0.17	0.16	0.00	0.08	0.19	0.19	0.17	0.28	0.28
Sat Flow, veh/h	1781	3554	1582	1781	3554	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	377	330	153	296	208	0	133	212	185	473	315	257
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	11.0	5.5	5.8	8.7	3.4	0.0	3.8	3.3	6.9	11.0	4.5	9.0
Cycle Q Clear(g_c), s	11.0	5.5	5.8	8.7	3.4	0.0	3.8	3.3	6.9	11.0	4.5	9.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	538	577	257	476	559		419	683	305	554	997	445
V/C Ratio(X)	0.70	0.57	0.60	0.62	0.37		0.32	0.31	0.61	0.85	0.32	0.58
Avail Cap(c_a), veh/h	538	1046	466	485	1046		576	1596	712	554	1596	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.8	25.0	25.1	18.1	24.3	0.0	18.4	22.4	23.9	18.2	18.3	19.9
Incr Delay (d2), s/veh	3.4	0.9	2.2	1.7	0.4	0.0	0.2	0.5	4.1	11.7	0.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	2.2	2.2	3.4	1.4	0.0	1.4	1.3	2.7	6.5	1.7	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	25.9	27.3	19.8	24.8	0.0	18.5	23.0	28.0	29.9	18.7	22.5
LnGrp LOS	C	C	C	B	C		B	C	C	C	B	C
Approach Vol, veh/h		860			504			530			1045	
Approach Delay, s/veh		24.5			21.9			23.6			24.7	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	18.4	14.7	16.5	9.3	24.1	15.0	16.2				
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0				
Max Green Setting (Gmax), s	11.0	29.0	11.0	19.0	11.0	29.0	11.0	19.0				
Max Q Clear Time (g_c+I1), s	13.0	8.9	10.7	7.8	5.8	11.0	13.0	5.4				
Green Ext Time (p_c), s	0.0	3.5	0.0	2.0	0.0	4.9	0.0	0.9				











Intersection Summary

HCM 6th Ctrl Delay	24.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	495	372	540	34	141
Future Volume (vph)	495	372	540	34	141
Turn Type	Prot	NA	pm+ov	pm+pt	NA
Protected Phases	8	2	8	1	6
Permitted Phases			2	6	
Detector Phase	8	2	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	24.0	24.0	24.0	11.0	24.0
Total Split (s)	24.0	25.0	24.0	11.0	36.0
Total Split (%)	40.0%	41.7%	40.0%	18.3%	60.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0
Lead/Lag		Lag		Lead	
Lead-Lag Optimize?		Yes		Yes	
Recall Mode	None	Min	None	None	Min

Intersection Summary





Cycle Length: 60






Actuated Cycle Length: 45

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Pine Dr & Inspiration Dr

 Ø1	 Ø2	
11 s	25 s	
 Ø6		 Ø8
36 s		24 s

					
Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	581	404	587	37	153
v/c Ratio	0.55	0.66	0.40	0.10	0.20
Control Delay	16.1	21.0	1.2	8.5	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	21.0	1.2	8.5	9.3
Queue Length 50th (ft)	48	71	0	5	23
Queue Length 95th (ft)	131	#215	20	18	55
Internal Link Dist (ft)	290	473			411
Turn Bay Length (ft)				300	
Base Capacity (vph)	1488	851	1460	361	1345
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.39	0.47	0.40	0.10	0.11












Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/18/2022

2: Pine Dr & Inspiration Dr
2040 Back+Project w/Pine Ext_Signal - PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	495	40	372	540	34	141
Future Volume (veh/h)	495	40	372	540	34	141
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	578	0	404	587	37	153
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	806	359	646	906	322	964
Arrive On Green	0.23	0.00	0.35	0.35	0.04	0.52
Sat Flow, veh/h	3563	1585	1870	1585	1781	1870
Grp Volume(v), veh/h	578	0	404	587	37	153
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	1781	1870
Q Serve(g_s), s	7.0	0.0	8.4	11.7	0.6	2.0
Cycle Q Clear(g_c), s	7.0	0.0	8.4	11.7	0.6	2.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	806	359	646	906	322	964
V/C Ratio(X)	0.72	0.00	0.63	0.65	0.12	0.16
Avail Cap(c_a), veh/h	1380	614	765	1007	440	1207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.6	0.0	12.7	6.8	9.0	5.9
Incr Delay (d2), s/veh	1.2	0.0	1.2	1.3	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	3.1	5.5	0.2	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.8	0.0	13.9	8.0	9.1	6.0
LnGrp LOS	B	A	B	A	A	A
Approach Vol, veh/h	578		991			190
Approach Delay, s/veh	17.8		10.4			6.6
Approach LOS	B		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.9	22.1			30.0	16.5
Change Period (Y+Rc), s	6.0	6.0			6.0	6.0
Max Green Setting (Gmax), s	5.0	19.0			30.0	18.0
Max Q Clear Time (g_c+I1), s	2.6	13.7			4.0	9.0
Green Ext Time (p_c), s	0.0	2.4			0.8	1.6

Intersection Summary

























HCM 6th Ctrl Delay	12.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Timings
11/18/2022

3: SH-83/Parker Rd & Aurora Pkwy
2040 Back+Project w/Pine Ext_Signal - PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	5	45	326	5	342	30	2280	547	420	2960	55
Future Volume (vph)	40	5	45	326	5	342	30	2280	547	420	2960	55
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pt+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	8 1	5	2		1	6	
Permitted Phases	4		4	8					2			6
Detector Phase	7	4	4	3	8	8 1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	2.0	8.0	8.0	6.0	8.0		6.0	18.0	18.0	6.0	18.0	18.0
Minimum Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	36.5	36.5	11.0	36.5	36.5
Total Split (s)	7.0	16.0	16.0	11.0	20.0		11.0	64.0	64.0	29.0	82.0	82.0
Total Split (%)	5.8%	13.3%	13.3%	9.2%	16.7%		9.2%	53.3%	53.3%	24.2%	68.3%	68.3%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0		5.0	6.5	6.5	5.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 120











Actuated Cycle Length: 120













Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 3: SH-83/Parker Rd & Aurora Pkwy

				
Ø1	Ø2 (R)		Ø3	Ø4
29 s	64 s		11 s	16 s
				
Ø5	Ø6 (R)		Ø7	Ø8
11 s	82 s		7 s	20 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	43	5	49	354	5	372	33	2478	595	457	3217	60
v/c Ratio	0.33	0.03	0.17	0.91	0.02	0.40	0.38	0.95	0.58	0.76	0.93	0.05
Control Delay	51.6	51.2	1.4	76.0	47.4	31.7	67.6	37.5	8.2	55.2	24.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	51.2	1.4	76.0	47.4	31.7	67.6	37.5	8.2	55.2	24.9	0.1
Queue Length 50th (ft)	28	4	0	129	4	123	25	669	73	173	~871	0
Queue Length 95th (ft)	62	17	0	#222	16	167	60	#835	191	227	#1036	0
Internal Link Dist (ft)		328			3611			3398			668	
Turn Bay Length (ft)	225		225	225		225	500		500	500		500
Base Capacity (vph)	132	155	285	388	217	970	88	2619	1022	686	3448	1111
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.03	0.17	0.91	0.02	0.38	0.38	0.95	0.58	0.67	0.93	0.05

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

























95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

11/18/2022

3: SH-83/Parker Rd & Aurora Pkwy
2040 Back+Project w/Pine Ext_Signal - PM Peak Hour







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	5	45	326	5	342	30	2280	547	420	2960	55
Future Volume (veh/h)	40	5	45	326	5	342	30	2280	547	420	2960	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	5	49	354	5	372	33	2478	595	457	3217	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	156	132	505	218	753	59	2685	834	530	3298	1024
Arrive On Green	0.02	0.08	0.08	0.05	0.12	0.12	0.03	0.53	0.53	0.15	0.65	0.65
Sat Flow, veh/h	1781	1870	1585	3456	1870	2790	1781	5106	1585	3456	5106	1585
Grp Volume(v), veh/h	43	5	49	354	5	372	33	2478	595	457	3217	60
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1395	1781	1702	1585	1728	1702	1585
Q Serve(g_s), s	2.0	0.3	3.5	6.0	0.3	13.5	2.2	53.6	34.2	15.5	72.4	1.7
Cycle Q Clear(g_c), s	2.0	0.3	3.5	6.0	0.3	13.5	2.2	53.6	34.2	15.5	72.4	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	173	156	132	505	218	753	59	2685	834	530	3298	1024
V/C Ratio(X)	0.25	0.03	0.37	0.70	0.02	0.49	0.56	0.92	0.71	0.86	0.98	0.06
Avail Cap(c_a), veh/h	173	156	132	505	218	753	89	2685	834	691	3298	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.9	50.6	52.0	50.3	46.9	36.9	57.1	26.2	21.6	49.6	20.3	7.8
Incr Delay (d2), s/veh	0.7	0.1	1.7	4.3	0.0	0.5	7.9	6.7	5.2	8.8	10.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.1	1.5	2.6	0.1	4.7	1.1	22.4	13.5	7.0	26.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	50.6	53.8	54.7	47.0	37.4	65.0	32.9	26.8	58.4	31.3	7.9
LnGrp LOS	D	D	D	D	D	D	E	C	C	E	C	A
Approach Vol, veh/h	97				731				3106			
Approach Delay, s/veh	52.2				45.8				32.1			
Approach LOS	D				D				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.4	69.6	11.0	16.0	9.0	84.0	7.0	20.0				
Change Period (Y+Rc), s	5.0	6.5	5.0	6.0	5.0	6.5	5.0	6.0				
Max Green Setting (Gmax), s	24.0	57.5	6.0	10.0	6.0	75.5	2.0	14.0				
Max Q Clear Time (g_c+I1), s	17.5	55.6	8.0	5.5	4.2	74.4	4.0	15.5				
Green Ext Time (p_c), s	0.9	1.8	0.0	0.0	0.0	1.1	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 34.7
HCM 6th LOS C

Notes

User approved pedestrian interval to be less than phase max green.

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	678	10	20	345	10	10	35	15	10	35	19
Future Vol, veh/h	12	678	10	20	345	10	10	35	15	10	35	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	737	11	22	375	11	11	38	16	11	38	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	386	0	0	748	0	0	1020	1199	374	839	1199	193
Stage 1	-	-	-	-	-	-	769	769	-	425	425	-
Stage 2	-	-	-	-	-	-	251	430	-	414	774	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1169	-	-	856	-	-	191	184	623	259	184	816
Stage 1	-	-	-	-	-	-	360	409	-	578	585	-
Stage 2	-	-	-	-	-	-	731	582	-	586	406	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1169	-	-	856	-	-	151	177	623	205	177	816
Mov Cap-2 Maneuver	-	-	-	-	-	-	151	177	-	205	177	-
Stage 1	-	-	-	-	-	-	356	405	-	572	570	-
Stage 2	-	-	-	-	-	-	648	567	-	511	402	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.5	30	26.4
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	208	1169	-	-	856	-	-	237
HCM Lane V/C Ratio	0.314	0.011	-	-	0.025	-	-	0.294
HCM Control Delay (s)	30	8.1	-	-	9.3	-	-	26.4
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1.3	0	-	-	0.1	-	-	1.2

Intersection						
Intersection Delay, s/veh	5.9					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		1	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	926		331		20	
Demand Flow Rate, veh/h	944		337		20	
Vehicles Circulating, veh/h	18		443		944	
Vehicles Exiting, veh/h	651		521		18	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	5.8		5.7		6.0	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.469	0.531	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	444	500	158	179	20	326
Cap Entry Lane, veh/h	1328	1399	898	974	636	1061
Entry HV Adj Factor	0.980	0.982	0.984	0.979	1.000	0.981
Flow Entry, veh/h	435	491	155	175	20	320
Cap Entry, veh/h	1301	1373	883	954	636	1041
V/C Ratio	0.334	0.358	0.176	0.184	0.031	0.307
Control Delay, s/veh	5.8	5.9	5.8	5.5	6.0	6.5
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	2	1	1	0	1

Intersection

Int Delay, s/veh 9.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	398	77	147	267	52	334
Future Vol, veh/h	398	77	147	267	52	334
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	433	84	160	290	57	363

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	517
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	1045
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1045
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.2	27.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	563	-	-	1045	-
HCM Lane V/C Ratio	0.745	-	-	0.153	-
HCM Control Delay (s)	27.8	-	-	9.1	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	6.5	-	-	0.5	-

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↔	↑↑	↔	
Traffic Vol, veh/h	684	48	22	385	28	12
Future Vol, veh/h	684	48	22	385	28	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	743	52	24	418	30	13

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	795	0	1026
Stage 1	-	-	-	-	769
Stage 2	-	-	-	-	257
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	822	-	231
Stage 1	-	-	-	-	418
Stage 2	-	-	-	-	762
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	822	-	224
Mov Cap-2 Maneuver	-	-	-	-	224
Stage 1	-	-	-	-	418
Stage 2	-	-	-	-	740

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	20.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	276	-	-	822	-
HCM Lane V/C Ratio	0.158	-	-	0.029	-
HCM Control Delay (s)	20.5	-	-	9.5	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

Intersection

Int Delay, s/veh 1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↖	
Traffic Vol, veh/h	640	47	26	376	30	16
Future Vol, veh/h	640	47	26	376	30	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	696	51	28	409	33	17

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	747
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	857
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	857
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	19.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	303	-	-	857	-
HCM Lane V/C Ratio	0.165	-	-	0.033	-
HCM Control Delay (s)	19.2	-	-	9.3	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-